• This is a reasonably complete draft
of the manuscript of Harry Stone, assembled
son → by M.D. Stone, 7/8/66
• Additional sections are either earlier drafts
that were subsequently discarded, or new
sections not yet incorporated.

Dale Thomas Moss né Stone
great grandson ↙
12/15/2016

Philip Morris Stone
grandson ↓
11/8/97

1

TABLE OF CONTENTS.
SECTION I

"Complete" working copy 9/8/66 MDS

TABLE OF CONTENTS.

TABLE OF CONTENTS.

TABLE OF CONTENTS.

TBLE OF CONTENTS.

Section 5

SECTION I

First Principles or the Fundamental Laws of Nature.

Force and Space are properties of matter. That is, there is no force without matter nor matter without force. And that originally, before the division of matter into the elements, the force of matter acted in all directions alike and infinitely into space.

Force Acts upon Force.

~~Also that~~ One of the fundamental laws of nature is that force acts upon force. That is, when two points of original Matter-Force act upon one another, each atturns (directionalizes into lines of force or momentums*) a certain amount of the force of the other one towards itself (see fig. 1)

The Division of Matter-Force into Particles or Atoms and their Individualization.

The division of matter-force into particles or atoms and their individualization and all the other properties of the elements are all derived from the original matter-force by the sole act of atturnation, which caused the differentiation of the original force into two forces: the atturned chemical and the unatturned original or gravitational. Thus when original ~~ginal~~ force is atturned or directionalized, it at once is transformed into a force that acts in one direction only, and ceases to act in all the other directions, and the particles of matter associated with such a force acquire the property of bodyism, that is, of separateness and individualism from the matter-force all around it, and becomes a separate body. Directionalism also makes each directionalized point of matter ~~to~~ act as a line of force and therefore makes it capable of meeting with other such lines of force and neutralizing one another, the same as when two moving bodies meet and ~~they~~ neutralize one another's momentums, when they meet from opposite directions, and when they meet at an angle, only neutralize one anothers ~~force~~ (momentum) partially, and form a resultant body with a resultant force.

* A momentum is a point of matter-force acting in a direction or as a line of force.

The Capability of Force to be Neutralized Made it Possible for Matter to be Divided into Elements. ~~a number of different atoms possessing different amounts of the two forces, that is, into elements.~~

Since force and space are both triple space properties of matter, therefore, the action of the atturned force through the space of a point of matter-force is as the law of space, that is, inversely as the square of the distance. Each atom is made up of two halves (of two points of matter), and the atturned lines of force of each half is in the direction towards those of the other half only. And as an atturned force acts only in the direction of its atturnation and not in any other, therefore, the two halves of an atom form one inseparable whole, separated from all the other atoms. Now when two points of matter-force act upon one another they atturn one another's original force and form an atom. In each atom, only a certain amount of the lines of force of each point or half met with the lines of force of the other half and neutralized one another wholly or partially (according to the angle of their meeting), while some escaped meeting and proceeded in their courses to the outside of the atom, forming its chemical force, as in Fig 1b.

Again, the directionalized lines of force acted (attracted, as the action of force is attraction) only in the direction they were atturned* — those of each halfin the direction of the other half, or of the parts or particles of that other half, and ceased to act in any other direction. And this caused the little body or atom formed of the two halves to become free, and separate from all the rest of the original matter-force into an individual body or atom.

Thus was originated bodyism or individualism, and the division of original matter-force into, and the formation of, individual particles or atoms of unchangeable magnitudes, form, and force.*

Again, as explained, only a certain amount of the original force of each half of the atom could be and was atturned by that of the other half, and a certain amount remained original.

* the same as when a momentum is imparted to a body the imparted momentum acts in the direction it was imparted, and the body moves in that direc only, and would continue so for ever.

Title – make [illegible]

The Amount of Original Force of Each Half of the Atom that was Atturned by That of the Other One was Inversely Proportional to the Square of the Distance of ~~the Different Parts of Each Half-Atom from Those of the Other Half~~

Title – narrow

triple space

As a result of this law, the attraction between the two halves of each atom is greater than the attraction of the atom for the other things in existence outside of itself. Thus this makes atoms, once they are formed, indestructible.

Again, as already stated, in atoms only a certain amount of the lines of the atturned force could meet, and therefore met, and were either entirely or partially neutralized and a certain amount escaped meeting and proceeded in their courses and passed to the outside of the atom. Therefore, each atom possesses two forces : original and atturned. The first, as explained, acts in all directions and infinitely into space, and is the gravitational force of the atom, and the second (which acts directions like lines of force, and is neutralizable by meetings) is the chemical force of the atom.

Again atoms, as already explained, are indestructible, and once formed, cannot be altered in any way and by no force extant. Because, as explained, after the lines of force from each half passed through the other half, the greatest amount of them met and became partially or wholy neutralized, their remnants, only, passing to the outside of the atom. Accordingly, these lines were only fractions of their original strength or intensity, the biggest part of each having become neutralized in the passing, it being remembered that it is the neutralized lines of force of atoms that hold the two halves of the atom together. This therefore, is why the two halves of each atom are held together by a force much greater than the outside force of atoms, and which in its turn, is the greatest of all the rest of the forces of nature, but is much less than what is needed to destroy an atom, and therefore no force exists that can destroy an atom.

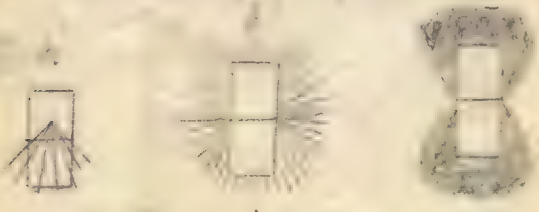
Even the amount of the atturned force of atoms cannot be changed quantitatively, nor reatturned in another direction — atoms once formed can-

not be remade, because the atturned force of an atom was formed both by the original force of universal matter-force, and by ~~that of~~ the action of the two halves of the atom itself. ~~But each time an atom was formed the universal original matter-force~~ But as the greatest part of the original matter-force was converted into atturned, and the greatest part of the ~~atom~~ atturned is neutralized in the atoms of divided matter, thus ~~Therefore~~ atoms cannot be reatturned nor changed in any way.

Internal Structure of Atoms.

The atturned lines of force of atoms, as explained, go from each particle of one of the halves of the atom to all the particles of the other half of it, as in the fig. 1a in which for greater clarity only a few lines of one particle are shown. Of the immense number of the lines of force of an atom, as already explained, the greatest number meet amd are either entirely or more or less partially neutralized by one another, but ~~and~~ some escape meeting. And these and the partly neutralized ones proceed in their course to the outside of the atom as in fig. 1a and 1b. and form its chemical force.

The chemical lines of force of atoms are more intense at the middle of the atom, decreasing towards ~~to~~ its ends and corners, while the gravitational, on the contrary, is the least in the middle of the atom, increasing toward ~~to~~ its ends where it is the greatest, as in fig. 1C, the shading showing the gravitational force.



a b c

Fig 1

~~The amount of the original matter-force atturned in the different parts of each half of an atom is inversely proportional to the square of the distance of each of these parts from its other half~~ The Neutralization of Each of the Atturned Lines of Force of Each Half ~~of an~~ Atom is Proportional to the Distance it Passes Through the Other Half ~~of the~~ Atom.

Now according to this law, if any of the dimensions of an atom be increased, as in fig. 2, in which atom A is increased to twice its length, the chemical forces at the faces F, F of the increased axis decrease inversely as the square of ~~their~~ distance from the other half of the atom, while the chemical forces on the faces at right angles to them (the sides S, S) increase proportionally as the square of its increase in the length. Thus if in atom A the chemical force on a face F is, say, X and on the sides S it is Y then in atom B the chemical forces on the faces F, F are one fourth that of F of atom A, while the chemical forces on the faces S, S of B are four times that of S, S of atom A. As a result of the same law, and as already explained, the intensity of each line of force of an atom (or of any part of it) is inversely proportional to the square of its distance from the center of the atom. Therefore the lines of force of atoms are of greatest intensity at the faces of the atom that are nearest to the center of the atom and of the smallest intensity at the faces farthest from the center, and consequently they are of greatest intensity on the sides of the atom, and the weakest at its end faces. Also at each face, the chemical lines of force are the most intense at the center of the face, decreasing in intensity gradually from the center of the face towards its ends and corners. Therefore the longer atoms are, (their thicknesses and widths being the same) the greater the intensity of their chemical forces on their sides of the increased axis and weaker on the end faces of that axis.

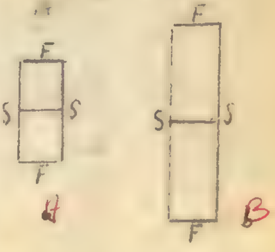


Fig 2

Accordingly the thicker the atoms are (their widths and lengths being the same), or the wider they are, their lengths and thicknesses being the same, the less intense are their chemical forces on the faces of their thickness or width, and somewhat more intense on the faces of the ends.

If all three axes of the atom are increased, the intensity of the chemical forces remain the same, only their volumes on the faces at right angles to the increased axes increase proportional to the square of the increase.

Conphericity and Coneutralization.

Conphericity of the atoms of elements means that when the atoms of two elements differ so much in magnitude that when they are put togther (the middle of one matching the middle of the other) a circle may be drawn around them touching the corners of both atoms, as in fig. 3. That is, a circle may be drawn around them, the smaller atom fits into the desphericity of the bigger one — see fig. 3. Coneutralization means that the chemical force of the whole smaller atom, that is, of all its faces, is of such magnitude that it neutralizes the chemical force of the bigger one — of their faces only.

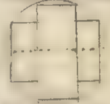


Fig 3

(2½" × 2½")

Atturnation Produced by Atoms.

Atturned force, just as for the original force, when it acts upon original matter-force it atturns in the direction towards itself, each atturned line of force of the atom atturning a corresponding line in the particle of the original matter-force it was atturning into an atom. And this is why atoms that were formed by the original force, in their turn, immediately after each was formed, formed atoms around itself (on its own sides). But atoms, as explained further on, of the same magnitude do not neutralize one another's force as much as atoms of different magnitudes (that is, atoms that are conspheric with one another). Thus, the law of conphericity and coneutralization caused atoms to form other atoms that were conspheric and coneutralizing with them.

Some of the Conditions that Brought About the Division of Matter.

Universal matter-force is here assumed to have been finite in its extent and to have been of slightly ~~different~~ non-uniform dimensions , that is, initial shape, somewhat oblong, not spherical ~~or round whole~~.And it is as a result of this,that in the very begining,its atturnation power was greater in the direction of its (obliquity) oblongness and ~~that~~ is why it could produce atturnation and formation of atoms (by one half of its length upon the other half), which the force of two halves of a round body could not do:its force being equal in all directions ~~alike~~ and therefore equilibral .It is also as a result of ~~this~~ that the universe acquired poles and an equator.

Properties of the Elements and their Origin.

As already explained, the elements and their properties were produced first, by the differentiation of the original force of matter by atturnation, into chemical and gravitational forces, and secondly, by the fact that each atom that was formed in the division of matter, caused the formation of atoms next to on its own sides ~~by~~ according to the law of conphericity and coneutralization, these ~~therefor~~ being ~~were~~ smaller than the initial atoms themselves and of different dimensions than the atoms that produced them. That is,each atom after it was formed caused (by the law of conphericity and coneutralization) atoms to be formed on its own sides of such properties as to suit it:that is,to be conspheric and coneutralizing with it,and their chemical intensities and chemical volumes to be such as to suit that purpose the best .And for that reason the atoms it formed on itself had to be of different dimensions and magnitudes than its own,and therefore ~~was~~ were of different properties,that is of different chemical and gravitational forces : as differences in dimensions invariably produced differences in the properties of atoms ,as explained ~~in the art of~~ on page ~~four~~ 4 by the decrease in the amount of the original matter-force as division progressed, ~~and which too caused~~ causing changes in the magnitudes of the atoms ~~that were~~ being formed,and therefore in their properties.

The Force that Divided Universal Matter into Atoms of Different Elements.

The division of matter, as explained earlier, was ~~done~~ brought about by two causes or forces: 1) the action of the original force of universal matter, and 2) by the action of the atturned force of each atom (after ~~that~~ it was formed), causing the formation of different atoms on its different sides according to the law of conspherecity and coneutralisation.

Of the two forces, the action of the atturned force ~~is~~ was the stronger and whenever the two acted upon the same point or particle of original matter-force it was the atturned force that formed atoms there and not the original force ~~other one~~, the original force forming atoms only where the first did not act.

The greater strength of the atturned force was due to its being close to the acted-upon part or point of original matter, while that of the universal matter-force ~~U.M.F.~~ acted from a great distance (from Universal distance). The two forces therefore acted and worked in the following manner: whenever and wherever the universal matter-force ~~U.M.F.~~ acted alone (the other being absent or smaller than a tenth of it) it caused the formation of atoms of a certain magnitude X. But when the two acted together on the same point or particle of matter-force, the action of the first predominated and superseded the second ~~other~~.

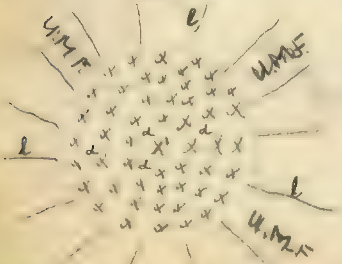
Now in the begining (when division began) no atturned force existed, the universal matter-force ~~U.M.F.~~ formed the first atom, and that atom, as explained, was as big as the strenth of the universal matter-force ~~U.M.F.~~ could produce, and its magnitude was X.

Escaping lines of Atturned Force, their Accumulation and the Effects of their Accumulation on the Progres of Division.

Now as known, the number of the chemical lines of atturned force of atoms and their intensities are greater, the bigger, i.e. longer, the atoms are. In fact, the ~~amount~~ number of the atturned lines of force in atoms is very ~~numerous~~ great. But as numerous as they are, they are gradually neutralized through meetings with lines of force from other atoms, with which they combine. But no matter how many combinations (simple or complex) atoms form, not all of their lines of force are neutralized. Very small fractions of each line escape meeting and neutralization and are gradually accumulated and extend (from the volume of the divided matter) into the yet undivided matter-force, as in fig. 4.

Now it was the amount of these escaped lines of force that caused the first change in the magnitude of the atoms that were being formed in the division, and the repeated, successive accumulations of that amount, that caused a succession of such changes. Thus in the begining when division began, and no atturned force yet existed, the U.M.F. formed the first atom X', and that atom was produced by its full strength, and was, as already explained, of the magnitude X'. Now after this first atom was formed, its lines of force immediately extended all around it to a certain distance d, and therefore the U.M.F. could form no atoms in the space of d, on account of these lines of force, but only at greater distances, ~~where its lines end~~, as in fig. 4. And thus X atoms were formed in the begining, by the U.M.F. at intervals d from one another as in fig. 4, and the matter between the X atoms was afterwards divided by the X atoms themselves into atoms according to the law of conspehericity and coneutralization. And in this way division proceeded, and huge masses of original matter-force were divided into atoms and elements.

Fig. 4.



l ... escaped fractions of lines of atturned force
d = the distances between successive X's
U.MF = undivided matter-force

How the X Atoms Divided the Matter of the ~~distances~~ Inter spaces d.

After the X atoms were formed by the U.M.F. each X atom commenced to divide the matter of the space d next to it in the following manner: first it formed atoms of different thicknesses on its own different sides, according to the law of conspherieity and coneutralization; and these secondary atoms in their turn, formed tertiary atoms on their own sides and these were smaller than the secondary. And in like manner the tertiary formed quarternary (smaller than the tertiary) ; and the quarternary formed still smaller atoms. But these were already of the imponderable classes. Now as a result of all this, each X atom was the center of a very great and complex molecule, and that molecule was surrounded by an atmosphere of molecules of the imponderable classes of elements. This atmosphere of imponderable molecules around each ~~X~~ molecule was millions of times bigger than the ~~X~~ molecule itself. And in this manner, did division continue to the end.

How Division Proceeded

Now as division proceeded and the U.M.F. formed hundreds of thousands of miles of X atoms in the center of the universe and these in their turn divided the matter of their interspaces ~~of their distances from one another~~ into elements, the escaping fractions of atturned force gradually and constantly accumulated and extended into the yet undivided matter force U.M.F. as in fig. 4. And when the divided matter reached a certain volume or mass, the escaped fractions of the atturned force became so great ~~much~~ and strong that they weakened the U.M.F. so much (see art. page ?) that it could not form any more atoms of the X size or magnitude, but only atoms one tenth smaller.

And as result, a change in the magnitude of the elements of the division took place, and the U.M.F. after that formed only elements whose atoms were a tenth smaller than the first X atoms.

Now as division after the first change proceeded again, the escaped fractions accumulated correspondingly more, and when an amount of matter-force as large as the first amount became divided, the accumulation of the escaped fractions became, too, as big as the first accumulation, and again weakened the U.M.F. as much as the first did, and the magnitude of the elements formed by the U.M.F. became again one tenth smaller. In this way in the division of matter of a solar sphere, 10 or 12 decrements ~~decreases~~ in the magnitude of the elements and 10 or 12 concentric layers of divided matter were formed, the elements of each successive layer being smaller by one tenth than those of the preceding layer.

Now each decrease in the magnitude of the elements took place when the accumulated escaped fractions of atturned force reached a certain amount. Now the smaller the atoms were, the less the number of their escaping fractions of atturned force. And as the elements of each successive layer of a solar sphere were smaller, there was needed a greater amount of the matter of the second layer to get as many of the escaped fractions of atturned lines of force (that was required to produce a change) as from the first layer. And therfore, "each successive layer of a Solar Sphere was larger than the preceding one."

After the Formation of the Last Layer, No Smaller Elements ~~Could~~ Be Formed.

After the formation of the last layer in a sphere, division could not preceed any farther, as no smaller elements could be formed. Because in every change of magnitude, the atoms became smaller by one ~~twelfth~~ tenth of the X atom. But the atoms of the last layer were already one ~~twelfth~~ tenth in size, and therefore could not be made any smaller and no more layers could be formed. Therefore, after the aether layer (the elements of the last layer were already of the aether classes) was formed, division in a solar sphere ended and the sphere was completed ~~and had to start anew from X~~, and a new solar sphere began to form.

Now when a solar sphere ~~is~~ was completed, the accumulated escaped fractions of atturned lines of force that extended ~~from~~ all around ~~are~~ were extremely ~~very~~ long (as long as the distance between solar spheres), and, therefore the U.M.F. could not form X atoms ~~nor only at that distance away~~. And that is why, ~~where~~ after the first solar sphere was completed, division started again and new solar spheres began to be formed all around the first one.

From the written pages 23 & 24

The elements of successive solar spheres diminished in size,,while the spheres themselves,on the contrary,grew bigger in size.

Commencing from the central solar sphere of the Universe,that is from the first sphere formed in the division of matter, the elements of successive solar spheres were smaller while the spheres themselves on the contrary grew bigger (from the center of the universe outwards) Because,as known,,the original matter-force was converted into atoms of atturned force ; and therefore after division began and proceeded the amount of the universal original matter-force gradually diminished (by being converted into atoms) and this made the atoms produced by the original matter-force to become gradually smaller Now although the amount of the original matter-force was infinitely great and a solar sphere a small fraction of of it;Yet,after each sphere was formed,it caused a small diminution in the amount of the original matter-force and wit a corresponding dimihution in the magnitudes of the atoms in successive solar spheres.

Why each successive solar sphere was bigger than the preceding one.

Now,as explained,every time the accumulation of the escaped lines in the division reached a certain amount a change in the magnitude of the atoms of the solar sphere took place and a new layer of atoms began.Therefore when,in the division of matter,the elements of alayer were bigger,the increase of the escaped lines of force of the layer was greater,,and the unit amount was reached soomer,and the layer had not to be so thick.But when the elements are smaller the volume of the divided matter of the layer had to be much bigger in order for the unit amount of the escaped lines of atturned force to be reached.And that is why each consecutive layer of a solar sphere was thicker than the preceding one ;and each consecutive solar sphere is bigger than the preceding one.

\\ \\

~~From the Written pages 23&24~~

The Elements of Successive Solar Spheres Diminished in Size, While the Spheres Themselves, on the contrary, Grew Bigger in Size.

Commencing ~~from~~ with the central solar sphere of the Universe, that is, from the first sphere formed in the division of matter, the elements of successive solar spheres were smaller, while the spheres themselves on the contrary ~~grew~~ were bigger (from the center of the universe outwards) Because, as known, the original matter-force was converted into atoms of atturned force ; and therefore after division began and proceeded, the amount of the universal original matter-force gradually diminished (by being converted into atoms). And this made the atoms produced by the original matter-force become gradually smaller. Now although the amount of the original matter-force was infinitely great, and a solar sphere a relatively small fraction of it, after each sphere was formed, it caused a small diminution in the amount of the original matter-force and a corresponding diminution in the magnitudes of the atoms in successive solar spheres.

Why Each Successive Solar Sphere was Bigger than the Preceding One.

Now, as explained, every time the accumulation of the escaped lines in the division reached a certain amount, a change in the magnitude of the atoms of the solar sphere took place, and a new layer of atoms began. Therefore, when, in the division of matter, the elements of a layer were bigger, the increase in the escaped lines of force of the layer was greater, and the unit amount was reached sooner, and the layer needed not to be so thick. But when the elements were smaller, the volume of the divided matter of the layer had to be much bigger in order for the unit amount of the escaped lines of atturned force to be reached. And that is why each consecutive layer of a solar sphere was thicker than the preceding one ; and each consecutive solar sphere was bigger than the preceding one.

Solar Sphere Layers and their Classes of Elements.

Elements of the same (or nearly the same) length and form, but of different thicknesses and widths, are ~~assumed~~ considered ~~here~~ as one class. Now each Solar Sphere, as already explained, consisted of ~~about 10 or~~ 13 12 layers or concentric shells of divided matter. And beginning from the center of the Solar Sphere, the molecules of each successive shell were smaller than those of the preceding shell or layer; and the differences in the magnitudes of the elements of any two successive layers were the same throughout the Solar sphere. ~~[illegible]~~ Now ~~according~~, the molecules of each layer consisted of one, two, three or four classes, according to their magnitudes and distances from the center of the Solar Sphere. That is, the ~~greater~~ larger the elements of a layer, the greater the number of classes the layer consisted of. Thus the molecules of the first layer (the layer at the center) consisted of a central atom of an element and four classes ~~[illegible]~~ of atoms of elements (see laws of division), and were the ~~biggest~~ longest of all. Those of the next layer consisted of a central atom of an ~~or~~ element and three ~~4~~ classes of atoms of the element. Those of the layers 3 and ~~4~~ consisted each of a central ~~element~~ atom, and two classes. Those of layers 5, 6, and ~~&~~ 7 consisted each of only a central atom (element) and one class; and those of layers 8, 9, and 10 consisted each of a central atom ~~element~~ and only a class of imponderable elements (each central element was ~~bigger~~ larger than the elements of its classes).

Elements, their Number, Number of their Classes, their Form and Magnitude.

If we arrange the molecules of all the layers of a Solar ~~SOlar~~ Sphere in a row, in the order of their magnitudes, then the form, magnitude and properties of the molecules become ~~[illegible]~~ evident ~~visible~~. ~~The~~ Fig. 5 shows ~~is~~ such an arrangement, only ~~only~~ in that fig. the primary atoms of elements and one of its classes of secondary are the only ones given of each molecule, and not the entire molecule.

Not only do we see the origin of the classes and of their forms, etc — but we see also why a class consists of 5 elements. ~~Because~~ In the molecules, ~~the~~ each class consists of 4 elements only, but in ~~the~~ fig. 5 it is seen that the secondary elements of each class of the molecules is equal to some one of the central primary elements of the other molecules, thus making each class con-

sist of 5 elements as elements of the same length are considered here to be of the same ~~length~~ class, no matter where they originated. Thus the class of 4 secondary elements of the molecules of layer 1 are of the same length as the central element of the molecules of layer 4. Similarly, the four secondary elements of the molecules of layer 2 are of the same length as the primary element of the molecules of layer 5, making that class ~~to~~ consist of 5 elements. In like manner, the secondary class of elements of the molecules of layer 3 are of the same length as the central element of the molecules of layer 6 — These of layer 4 as the central element of the molecules of layer 7, etc, etc, and th~~ose of layer 5 as the central elements of layer 8. These of layer 6 as the central elements of the molecules of layer 9. The secon- of the molecules of layer 7 as the central one of the molecules of layer 10. AND lastly~~ and finally (referring to elements of orthorhombic shape) we come to, the secondary element of the molecules of layer 8, as the central element of the molecules of layer 11. Now the secondary elements of the molecules of layer 9, 10 and 11 were already imponderable classes and consisted probably, of only 4 elements in each class. Thus it is seen how the classes of heavy elements consist of 5 elements each.

It is thus seen that the divided matter of our Solar Sphere consisted of about 17 classes, of which 13 are heavy elements, and 4 or more are imponderable ones. Of the heavy classes only about 13 are more or less definitely known and are ~~given~~ listed in the table of elements.

Now it is seen, that the secondary classes of elements of the molecules ~~the~~ of all layers are of orthorhombic form; while all the tertiary ~~&~~ and quarternary classes are either octahedral or prismatic (with the exception of class 6a).

Bulkiness of the Elements of Classes of Different Denominations.

Now according to the law of coneutralisation, in the formation of atoms by one another in the process of division, the elements of each successive class of a molecule were bulkier (shorter and thicker). That is, the elements of the secondary classes were bulkier than the primary elements and the elements of the tertiary classes were bulkier than those of the

secondary, and the elements of the quarternary classes bulkier than these of the tertiary. This is why the tertiary and quarternary are left hand classes (see ~~article left hand classes~~ later).

Identification of the Classes of the Layers with Those of the Table of Elements.

The classes Re, Mo, Ma, Cr, Ti, Be, and Li are all secondary classes, and are respectively of the molecules of the layers 1, 2, 3, 4, 5, 6, and 7, and are all of orthorhombic form. The classes of elements of the rest of the layers (layers 8, 9, 10 & 11) are the imponderable elements of the table . Of the tertiary classes Ga , Al, B, C and N the first two are orthorhombic, class B prismatic, while classes C and N perhaps tetrahedral . Classes H and He are quarternary (and therefore small) and of layers 1 and 2 , and probably of tetrahedral form.

Now in the table of elements, the classes are arranged according to their specific gravities magnitudes, and chemical powers. And the tertiary classes Ga, Al, B, and C ~~etc~~ of layers 1 & 2 are together ~~one next to the other~~, and are between the classes Ti and Be. Now this is because they are tertiary classes of the molecules of the layers 1 and 2 , and the tertiary of these layers are about 4 units smaller (see the unit magnitude) than the secondary. And class Ti elements are also 4 units smaller than the secondary element Re of layer 1, because Ti is the fourth class from class 1, and therefore 4 units smaller than class 1, being 4 layers distant from it. And thus, this is why the classes Ga, Al, B and C are next to class Ti in the table. Now class N is the tertiary of layer 3. The tertiary of layer 3 is smaller than the secondary of that layer by 3 units (and not by 4 as in layer 1) because, as known, the farther a layer is from the center of the Solar Sphere, the smaller the elements of the layer and the smaller the difference in magnitude between its classes. Class Be is also 3 units smaller than class Ma (layer 3) , and that is why class N is next to class Be. Also classes H and He are quarternary of layer 1 & 2. Now the difference in the magnitudes of the tertiary and

quarternary classes of molecules of layers 1 and 2 is 3 units. As already explained, the difference between the secondary and tertiary classes of layers 1 & 2 is four units, and the difference in the magnitude of quarternary and secondary classes of the layers 1 & 2 is 7 units. And therefore, the magnitude of the classes H and He is as that of the class 7 layer. And are is class Li which is the seventh layer from layer 1. And this is why class es H and He are next to class Li in the table of elements.

The Molecules of the Layers of a Solar Sphere, their Magnitudes, Forms and Magnitudes of their Elements and Number of Classes in Each.

As explained in the preceding article, in a Solar Sphere the molecules of each successive layer were smaller than ~~these~~ those of the preceding one; and that the ~~bigger~~ larger the molecules of a layer, the greater the number of classes it consisted of, and the ~~bigger~~ larger their elements. Also, as known, each molecule consisted of a central atom and classes of successively smaller elements around it. Thus each molecule of the first layer consisted of a central atom, a class of secondary elements around it, smaller than the central one (both the central and secondary element were of orthorhombic form); 2 classes of tertiary elements around the secondary, and smaller than the secondary, one of orthorhombic form, and one of triangular prismatic; and one class of quarternary (smaller than the tertiary), and of perhaps semioctahedral or tetrahedral form; and one class or more of imponderable elements, of the magnitude as class 8 imponderables.

The molecules of the second layer were somewhat smaller than those of the first layer, and consisted each of a central atom, a class of secondary (both of orthorhombic form) and also of 2 classes of tertiary (both of semioctahedral form), but no quarternary, the quarternary being already elements of the magnitude as class 9 imponderables. The molecules of layer 3 were still smaller, and consisted each of a central atom and one secondary class (both of orthorhombic form), and of only one class of tertiary (of semioctahedral form). But the quarternary of this layer were already imponderably elements of class 10 imponderables (~~see list of elements of page (34)~~ see Fig ___.

The molecules of the fourth layer ,being still smaller, also consisted ~~too~~ each of a central atom ,a class of secondary (of orthorhombic form),and of one class of tertiary(the tertiary being perhaps class He). The molecules ~~Fine~~ of layers 5, 6, and 7 (which were ~~are~~ still smaller) consisted each of a central atom ~~too~~ and only one class of secondary, their tertiary classes being ~~were~~ already imponderable elements.

The molecules of layers 8,9,10, and 11 (the smallest of all) consisted ~~too~~ each of only a central atom,and one class of imponderable elements—that is, their secondary classes were already imponderable elements.

Illustrations of the Molecules of Different Layers, ~~showing~~ their Forms,Magnitudes ,and Arrangement of their Classes o f Elements. ~~in the their molecules.~~

Now the magnitudes ,forms,and chemical forces and arrangement of the classes of elements in the molecules o f the layers ~~(see table)~~ were produced by the laws of consphericity and coneutralisation and were ~~to be~~ of such dimensions and chemical force,that their combinations produced the most complete neutralisation of their chemical forces ~~of our number~~. Fig. is a crossection of ~~the length of~~ a molecule of the first layer of the Solar Sphere ,and shows its classes of heavy elements , their forms, and arrangements. Fig. 7b+7c are mutual bisections of the same, lengthwise along the lines A,A & B,B,the first showing its secondary class S3+S4 and tertiary orthorhombic T1, and the second showing its right-angled triangular prismatic 3P and the tertiary class T2 ~~quarternary tetrahedral class~~.

7e+7f Fig. 7d is a crossection of a molecule of the third layer ,and its mutual bisections along the lines CC & DD . These molecules are two units ~~units~~ smaller than the preceding ones. Now since the smaller the molecules, the less the number of their classes ,therefore the quarternary elements of these molecules are imponderables already. They have one secondary class S4 (of orthorhombic form),and one secondary ~~tertiary~~ 3P (perhaps of equilateral prismatic form).

The chemical force of an atom can only be neutralised by repeated combinations on its sides with smaller and smaller atoms. No single atom can be neutralized, nor atoms of one class alone. This is why classes of atoms were formed successively around each central atom of each molecule in the division of matter, and the classes were of different form and chemical force, and the atoms of each successive class had to be smaller than those of the preceding one.

UMF could not produce atoms whose chemical forces were unsymmetrical. That is, it could not, for instance, form octahedral, tetrahedral, or prismatic atoms, etc.—only orthorhombic ones; all the former were formed from the orthorhombic atoms.

The Magnitudes of the Molecules of the Successive Layers of a Solar Sphere.

~~only two atoms of each molecule are shown in the diagram.~~

As the atoms of each successive layer of a Solar Sphere were one tenth smaller; and as the decrease was in all 3 dimensions of the atoms, the relative dimensions of the atoms of the same rank* are the same. And therefore, the chemical lines of force of elements of of the same rank are of the same intensity.

The Forms of the Imponderable Classes of Elements.

The classes of the imponderable elements differ in form just as the classes of the heavy elements. Thus the elements of two or three classes are orthorhombic in form, while two or three are of tetrahedral, semioctahedral, and triangular prismatic or pentahedral. The heat and electricity classes are orthorhombic.

* The rank of an element represents its position in its class. Thus first element of a class is of rank 1; the second, of rank 2, etc. If we divide the table of elements into vertical columns, the elements of each column are of the same rank, and their lines of chemical force are of the same intensity.

The Elements of Successive Classes of Each Layer of Divided Matter are, in general, Successively Smaller and Stockier. Thus the elements of the secondary classes are slenderer and of greater chemical force than the elements of the tertiary. And the tertiary are of greater chemical force, being slenderer, than those of the quarternary etc.

In combinations of orthorhombic and elements of the H, N & C classes and the C, C parts of the molecules of their compounds are much smaller than in the molecules of the compounds of the orthorhombic elements alone fig. 5(a) and (b). And the chemical forces in the first case are more completely neutralized than in the second.

We have just explained that the elements of the classes H, C, and N are of semioctahedral, tetrahedral etc. forms. Now the properties of these elements (as a result of their form) are as follows: Their specific gravities are less than for the orthorhombic elements of the same dimensions, and their melting points lower. This is because, as known, the gravitational force of atoms resides primarily at the ends of each atom, and is the greater, the thicker and blunter their ends. But the ends of the elements of the classes H, C, and N are, on the contrary, sharp and tapering and therefore their gravitational forces smaller. Also the magnitudes, forms, and chemical forces of these classes are such that when they combine with one another, or with the orthorhombic classes, they form more or less round molecules (as in fig. #7, p. 37) and therefore their atoms are more completely neutralised than when they combine with one another. This, as explained, is the aim of force, or the law of forces. And it is for this reason that these elements combine with one another and with the orthorhombic classes. And is ~~for this reason~~ why the orthorhombic classes of elements prefer to combine with these classes and to the classes of their own form. And this is also why all compounds of inorganic and organic chemistry are combinations of the elements of the classes H, C, N and B either with one another or with the orthorhombic classes. Likewise the compounds of the classes H, C, and N prefer to combine with the compounds of the orthorhombic and H, C, N, and B classes.

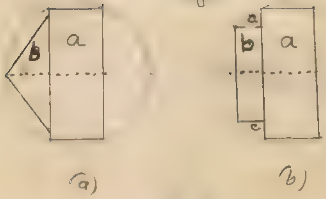


Fig I

Carbonates, phosphates, sulphates, chlorates etc. of the metals are such compounds. For instance copper sulphate ~~of copper~~ is a compound of the compounds CuO plus SO_3, that is, it is a compound of one of the orthorhombic classes H,C,N plus a compound of the classes H,C,N alone.

~~How Rays are Formed.~~ The Formation of Rays.

When the imponderable elements, such as heat, electricity, etc. are freed of their combinations with the heavy elements, the law of neutralisation causes their atoms (immediately) to combine into molecules. But since they are usually released from their combinations very rapidly ~~sudden like or very quick~~ and in great numbers (each heavy atom releasing thousands of atoms of the heat elements) not all the released heat atoms can combine into molecules at once, ~~only a certain amount of them at a time~~, the rest remaining for an instant ~~a second or~~ in the atomic condition. Now the ratio of the lengths of the three axes of the heat elements are about as 1 : 3 : 2, that is, their thickness is less than their width, which in turn is about one-half their length. ~~thinner than wide and twice as long as wide.~~ And their chemical or combining forces are greater on their two symmetrical sides or faces than on the others. Therefore, heat atoms combine with these into rays in the following manner: When heat elements are freed in great numbers, the lines of atturned force of the nascent atoms, before combining into molecules and becoming neutralized, partially decompose* some of the lines of force of the molecules of the heat elements that exist throughout space ~~air and space greatly consist of~~; and these partially decomposed heat molecules immediately combine with their sides or faces of greater chemical force, and thus ~~therefore~~ form rays. Such rays or heat atom lines exist for ~~last or live~~ but a second or even less, and vanish, new lines being successively and rapidly formed. ~~one after the other~~ They exist only as long as ~~long enough until~~ it takes the nascent atoms that produced them to themselves combine into molecules. Such rays (or rays in general) are produced only as long as new heat atoms are freed, that is, they are produced by the constantly and newly freed heat atoms. But we repeat, each lasts but for a second or so.

* The same as electric molecules in a coil are decomposed into positive and negative parts in each successive layer of wire of the coil by a charge of either negative or positive electricity.

— Table of Elements —

	H	He	Ne	A	Kr	
	Li	Na	K	Rb	Cs	
N	O	F	Cl	Br	I	
		Be	Mg	Ca	St	Ba
	C	P	S	Se	Te	
B	Si	Sc	As	Sb	—	
	Al	Zn	Cd	Tl		
	Ti	V	Fe	Ni	Ag	
	Cr	Mn	Co	Cu	Pd	
	—	Ga	In	Bi	Pb	
	Ma	Cb	Th	Hf	Rh	
	Mo	Ru	Ta	Ur	Au	
	Re	W	Os	Ir	Pt	

(64 elements)

21A

The Table Of Elements

The Table of elements,as known, consist of 13 classes of heavy elements and 4 classes of imponderable ones. Of course our Solar Sphere consists of many more elements than these,but only ~~teme~~ these of 13 classes are,as stated, more or less decidedly known to us.

Of the 4 classes of imponderable elements 2 classes are the Heat,Electricity,Magnetism etc. elements. These two classes are of orthorhombic form; while the other two classes are of tetrahedral,semioctahedral and pentahedral forms. But these are not very much known,and form perhaps the different kincs of Emanations and short rays as X-Rays etc.

In the table of elemwnts,the atomic weights are modified according to the requirements of the theory of creation.

In the table the chemical forces of the successive elements of each class decrease,while their sp. gravities as a result increase. This is seen by the decrease in the amount of Oxygen the elements of the class combine with,and by the decrease in the m.p. and sp.heats of the elements of each class

In the table the elements of successive classes are bigger,and so are their chemical and gravitational forces.

The intensities of the chemical forces of the elements of the vertical columns of the table are alike,but these of different columns are different. while these of the different elements of a column are of different volumes.In the table the chemical forces,sp. gravities, atomic weights, sp. heats,melting points and the amount of oxygen the elements of each class combine with,are given.

The elements of the left hand heavy and imponderable classes are all of orthorhombic form;while these of the right hand ones,class Ga is of orthorhombic form,the rest of the classes including the imponderable ones are of tetrahedral, semioctahedral,and prismatic forms.

Table of Elements

	H	He	Ne	A	Kr
M.P.	-240 'F	-268	-189	-189	-156
A.W.	1	3	8	13.3	24
O.A.= oxygen atoms	1/2-1	1/4-1/2	1/6-1/3	1/10-1/5	1/14-1/7

	Li	Na	K	Rb	Cs
M.P.	150	95.5	63.5	39	28.8
S.G.	0.59	0.95	0.86	1.5	1.88
S.H.	0.94	0.293	0.166	.08	0.5
A.W.	7	14	19.5	28	38
O.A.	1/4-1	2/7-2/3	1/5-2/5	1/6-1/3	1/7-2/7

	N	O	F	Cl	Br	I
M.P.	-195	-185	-	-40	59	107
S.G.	0.97air=1	1;1		2.4air=1	54air=1	7.9air=1
S.H.	0.24	0.217		0.124	.055	.055
A.W.	14	16	19	24	32	42
O.A.						

	Be	Mg	Ca	Sr	Ba
M.P.	950	800	809	800	850
S.G.	2.1	1.7	1.57	2.5	3.6
S.H.	0.4	0.25	0.15	.071	.068
A.W.	14	16	24	35	45
O.A.	1.2/3	1.1/3	1. 1/5	8/9	8/1

	C	P	S	Se	Te
M.P.	infus.	44	120		450
S.G.	graphit 2.2	2.02	2.04	4.5amorph.	6.

Continued

S.H.	2.5	2.02	0.12	.076	.05
A.W.	16	25	32	39.5	51
O.A.	2.1/3	2	2 an acid	1.1/3	1

	B	Si	Sc	As	Sb
M.P.	2300	1600	1200	800	630
S.G.	2.3	2.2	2.5	4	5.3
S.H.	0.254	0.2		.08	.05
A.W.	18	31	44	40.3	60
O.A.	2.6/11	2.2/9	1.1/2	2	1.1/2

	Al	Zn	Cd	Tl
M.P.	700	433	320	290
S.G.	2.67	6.9	8.7	11.9
S.H.	0.214	.093	.056	.033
A.W.	41	75	112	135
O.A.	2.1/4	1.1/3	1	3/4

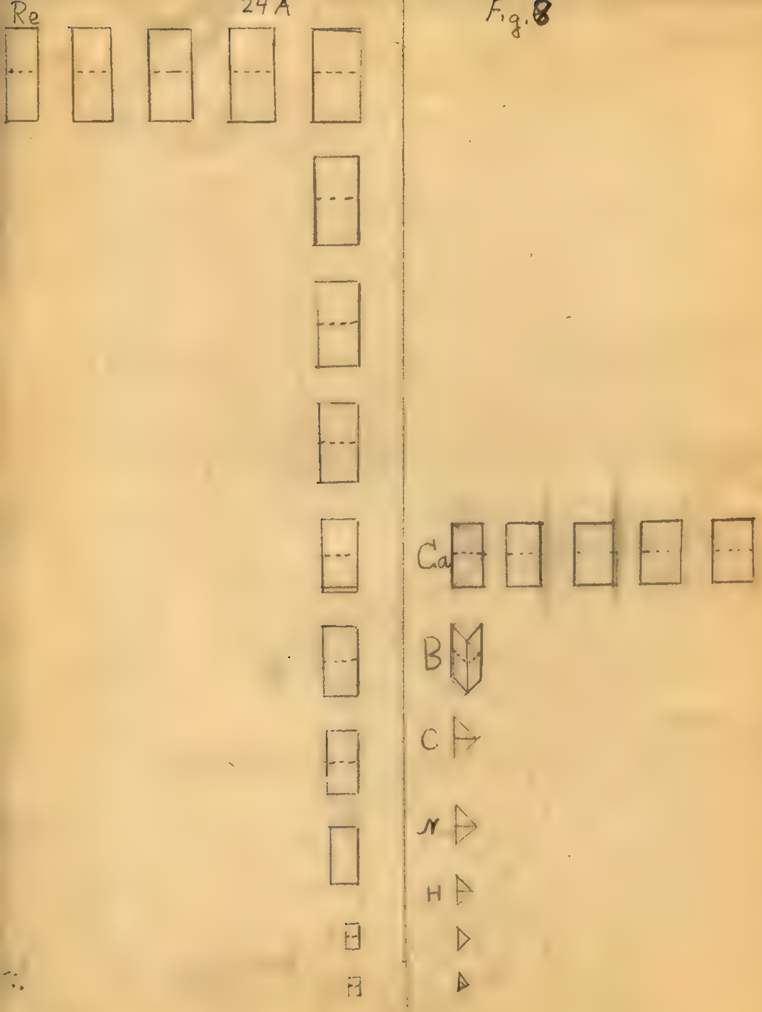
	Ti	V	Fe	Ni	Ag
M.P.	1800	1710	1530	1450	1000
S.G.	R.T	5.5	7.8	8.9	10.57
S.H.	.15	.125	.113	.108	.056
A.W.	44	51	56	7[illegible]	108
O.A.	2.10/16	2.1/2	1.5/8	1.2/5	1.1/3

	Cr	Mn	Co	Cu	Pd
M.P.	1500-2000	W + 1710	1990	1308	1550
S.G.	6.7	7-8	85	8.95	11.4

Continued

S.H.		.12	.12	.107	.093	.059
A.W.		52	60	75	90	106
O.A.		3	2.1/2	1.7/12	1.2/5	1.1/4
			Ga	In	Bi	Pb
M.P.			30	155	271	327
S.G.			6	7.4	9.7	11.25
S.H.			.079	.057	.039	.031
A.W.			69.7	95	134	152.5
O.A.			1.1/2	1.1/4	1.1/5	1
		Ma	Cb	Th	Hf	Rh
M.P.		10.5	10.7	10.7	12.1	12.4
S.G.		10.5	10.7	10.9	12.1	12.4
S.H.			.06			.058
A.W.		100	112	144	150	155
O.A.			2.10/13	2.1/4	2	1.1/2
		Mo	Ru	Ta	Ur	Au
M.P.		2620	2450	2400	1800	1300
S.G.		10.2	12.2	14	18	19-21
S.H.		.072	.06	.036	.027	.032
A.W.	116	116	136	156	176	197
O.A.		3.5/8	3.1/8	2.1/12	2	1.1/2
		Re	W	Os	Ir	Pt
M.P.		3440	3370	2700	2350	1900
S.G.		21	19-21	22.5	22.4	21
S.H.		.034	.033	.03	.032	.031
A.W.		166	184	190	193	197
O.A.		3.2/3	3	2.1/2	2	2

Fig. 8



The Table of page 49 is a figurative illustration of the dimensions and magnitudes of the elements of the heavy and imponderable classes.

In the left half of the Table are the left hand orthorhombic classes of secondary elements ; while on the right are the right hand classes of tertiary elements.

Excepting the class Re of the left hand classes and class Ga of the ri right hand classes, which are given in full, of all the rest of the classes, only one element of each class is shown, and these are the two vertical columns of elements . The elements of each column are of the rank(as is the case in all vertical columns). The two full classes sow show that in the orthorhombic classes of elements the widths and thicknesses of the elements are less than a half their lengths, while in the right hand classes(as class Ga)the widths and thicknesses of the elements are more than a half their lengths. (see art.   for full description and of its meaning)

It is very difficult to portray exactly the relative dimensions and magnitudes of the elements, as even an exaggeration or diminution in the dimensions as the thickness of a fine line makes a great difference in their properties. It is sufficient to know that the differences in the dimensions of the successive classes are more or less uniform or constant throughout the table; and so are the differences in the thicknesses of the elemnts of each class.

There are gaps between the classes of elements of the Table: there is a gap between the classes N ans H ; also between the class H and imponderable classes. The reason of the first gap is that class N elements are tertiary and the H class is quarternary. Similarly, the elements of class H are quarternary, while these of the ~~class~~ imponderable classes are pentenary and hexenary.

Assspherizee elements of great chemical forces, that is, of great dessphericities, are best neutralized by asspferizers also of greater chemical dessphericities; and the chemical dessphericities of the molecules of the ~~co~~ compounds of such elements are too greater (see d,d, in the accomp. fig.)

In atoms of semioctahedral and prismatic forms the chemical force on one of their faces is as great as on the faces of the orthorhombic elements of the same magnitude, as in fig. While on the other faces of these elements it is a half or less that of the orthorhombic faces.

The chemical force of no atom is ever entirely neutralized by combinations. Because if they were there would be no solid substances, only liquids and gases. And therefore, nothing possesing form and organisation ~~woud~~ would exist.

There exist probably bigger classes of elements, than classes Mo and Re, but they may never be discovered; as they can form no compounds with the assphierizer classes. Because the assphierizer classes cannot neutralize (having no strength) their chemical forces enough so as to combine with them, And elements that form no compounds cannot become elucidated and known. Such ultra Re classes , in the division were neutralized probably by the classes C and B elements. That is, these classes created or formed the elements of the classes C and B on their own sides. But in order that the classes C and B elements should combine atomically with these ultra elements a temperature of about 10000 to 15000 is probably needed , and that is impossible to produce.

The class Ga elements are of orthorhombic form and was apparently too formed by these ultra classes ~~of~~ as shown by the properties of the elements of the class. Thus although already the fourth or fifth class of ~~th~~ the Table, yet are of very low m. points, great atomic weights, great sp. gravities, small chemical forces: because "the thicker elements are the greater their sp. gravities, lower their m. points, smaller their chemical forces, and greater their atomic weights and the more do they prefer the lower rank elements of other classes to combine with.". And "tertiary, as known, are thicker than secondary (and Ga class are tertary). ANd, as known, the sp. gravities of orthorhombic are greater than of the non orthorhombic elements", and the Ga class are orthorhombic in form. And that is why the Ga class elements are of very low m. points, great sp. gravities , great atomic weights, small chemical forces, and prefer to combine with the lower rank elements of the classes N, C, and B (the elements Cl, Br, I ; S, Se, Te; As and Sb) to their high rank ones (the elements N, O ; C, P ; and B, Si).

 Table of elements precedes this

Faces and forms of atoms.

Atoms being small bodies into which the body of Universal matter-force was divided into,are therefore cospacious particles or litlle bodies ,and therefore have straght sides or faces and regular forms.

In the table of elements,begining with the first class of the heavy elements (the class H) the elements of each successive class are bigger and therefore,the chemical and gravitational forces of each class are respectivelygreater than of the preceding class. While in each class (begining from the left)each successive element is thicker than the preseding one.A And therefore* the chemical force of each successive element is smaller than that of the preceding one . And so is therefore its combination amount and strength; that is,the amount of atoms of asspherizer it combines with is smaller .while,on the contrary, its gravitational force is so much bigger. This is the result of the Law of Atturnation,as explained on p 3, 4 As a result of the same Law the intensities of the lines of force of the different faces of an atom are different. That is,the longer an atom is the less intense are the lines of force on the faces of its length(the ~~ends~~faces).. The same being the case :the ticker an atom is ,the less intense are the lines of force on the faces of its tickness,that is.the less their chemical force. While,on the contrary, the narrowrer or slenderer an atom is the greater the intensity of the lines of force on the face of its narrowness(the faces at its shorter axis).And therefore, its combinattive strength & greater its specific heat & melting point,and vice versa.

The nearer lines of force are to the center of the atom the greater their intensities ,And therefore,in atoms begining from the center of each atom and goin towards its edges and ends & corners,the farther away from the center a line of force is the smaller its intensity. Therefore,lines of force equally distant from the center of the atom are of equal intensity. And therefore the more round molecules (and atoms) are the more equal the chemical lines of force around them are,and the less ~~more~~ the combination strength of these molecules and atoms is.Also as a result atom combine with their faces

center to center and shape to shape of the faces.

As a result of the same law the longer or thicker an atom is the greates is its gravitational forces. therefore, the elements of each successive class are of greater sp. gravity ;and so are the successive el lements of each class.

The bigger a face of an atom is ,the nearer to them center of the atom it is, and the more intense the lines of force on that face.

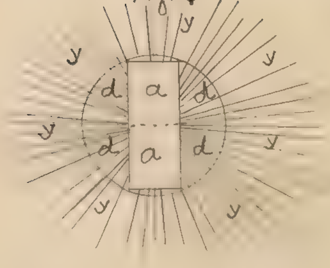
Another result of hat law is: that of the lines of that atom the parts (of these lines) that are within the desphericity of the atom (commencing from the middle of each dessphericity and going towards its end decrease in intensity ;while the parts of the lines that are otside the dessfericities of each atom are all of the same intensity. Thus the part lines D,D,D of M.F. fig. 8 (w.p.52) are of different intensities [redacted] (d' being of the greatest intensity and the intensities of the rest gradually growing smaller) while the lines Y,Y,Y are of the same intensity.

Now as a result of that, all solid compounds are the products of the lines of force of within the desphericities of atoms (in all solids the molecules are held together solidly by the D,D,D lines). And the different degrees of solidity as hardness, solidity etc. are proportional to the desphericities of the molecules of substances and the intensities of the lines of force of these molecules. While all compounds (done by the part lines Y,Y,Y of the molecules) that is, formed by more or less round molecules are liquids and gases. their liquidities and gaseousness being as the intensities of these lines of force of their molecules. That is all compounds whose molecules have more or less bigger dessphericities are solids, and these whose molecules do not have any, that is, are round or have more or less small ones, only form gases or liquids.

Law 2

The nature of chemical force is to become neutralised: hence the desire, striving or attraction of elements and atoms for one another, and why they combine with one another. Chemical force is neutralised by the meetings of their lines of force . But as elements and molecules posses diffe-

Fig. 9



rent amounts of that force and are of different forms and magnitudes,they do not neutralise one another alike,but some more and some less.

Since as a result of that law, the purpose of all combinations of the elements and molecules is to attain neutralisation of their frces. Therefore elements combine with one another,tha is,they exchange their own atoms for one another (as the atoms of each element are also combined with one another into molecules).Or when they are already combined with others,exchange them for still others when a greater amount of their chemical force becomes neutralised than in the combinations they are now.while wlements refuse to combine or exchange when no gain is attained,and especially when there is a loss in neutralisation. In the first case they may be made to combine by outside helo* .But when the exchange is accompanied by a loss in the amount of neutralisation such atoms and molecules absolutly refuse to combine and no help can make them to. All these things become plainly visible to us if we know the position,in the table of elements,of the classes to which these elements belong,and the position of each elemen in its class.

Law 3.
Indirect neutralisation.

The law of indirect neutralisation of the chemical lines of force of atoms,and their effect on the division of ,atter.

When two atoms or molecules combine their lines of force meet and neutralise one another in the following mannerN: By far the greatest majority of the lines of force on the two faces of their contact meet in the plane and are neutralised .While a small number of the lines of each atom penetrate into the other atom and meets with its lines of force that go to the other of its faces and neutralises them (see fig. 9)Thus the line of force of atom 1 penetrate atom 2 and meets and neutralises its lines of force L that goes to one of its other faces. Now as a result of this law ,each time when two atoms or molecules combine,a certain number of the chemical lines of force on all the other faces or sides of each atom also become neutralised, Therefore each time atoms and molecules combine,some of

the chemical forces (on all their faces and sides) become smaller ,and therefore the chemical forces of successively more and more complex molecules become successively smaller and smaller. Also this decrease of the ~~ch~~ chemical lines of force on the other free sides of atoms and molecules from combinations,was of greatest importance and consequence in creation .

It was this law that caused the division of matter into many elements ,instead of into one element. Because when,in the division of matter an atom A caused the formation of an atom on one of its sides the chemical force on all its other sides diminished. Therefore,when it caused the formation of an atom on its second side,both the atom and its chemical force were smaller than that of the first atom. Now the second atom again diminished the chemical force on the rest of the faces of A. And therefore, when A formed an atom on its third face,both that atom and its chemical force (of the third atom) were smaller than that of the second. The same being the case with the fourt atom that A formed on its fourth side.

Fig. 9,A,B ~~are~~ molecules of two elements,and shows how one of the lines of atom one penetrates into the other atom(when the two combine) and neutralised its line L',which otherwise would emerge on its other face F as in A

Fig. 9 shows how the line L' is neutralised by the line L.

Figurative illustration why elements combine with one another in prefference to their own atoms.

When atoms of the same magnitude (as atoms of the same element) combine they neutralise about 60 percent of the chemical force of the faces of their combination,leaving about 40 percent of their chemical force unneutralised.This is ~~seen~~ shown by the considerable magnitudes of the dessphericities of their molecules.because as explained, the dessphericities of atoms and molecules are exactly as their chemical forces. ~~Thus~~ fig. 10 is a molecule of two atoms of the same element,and the dessphericities DD of the molecule. are each about 40 percent as long as the dessphericity d of the atoms of the same molecule (As a result,the chemical force of such a molecule is about 40 percent unstable(as the amount of their unneutralised chemical force). But when atoms of different magnitudes(as elements)combine,the dessphericity of the bigger atom takes in the

Fig. 10

Fig. 9

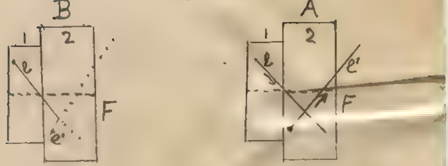
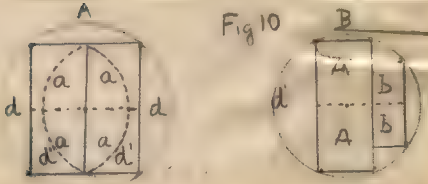


Fig 10



~~much bigger part of~~ the atom of the smaller one.Thus in fig. B the whole smaller atom b,b is within the dessphericity of the bigger atom A,while in fig.A the dessphericity of each A atom takes in only about a half of the other atom A as shown by the dotted line d',d'' .Now the more the two elements are conspheric the more are their chemical forces neutralised by one another.Thus when the force of the whole smaller atom is equal to the chemical force of only one combination face of the bigger, the two neutralise one another completely.Therefore, as there are no unneutralised chemical lines of force in their molecules;and as unneutralised chemical lines of force in compounds weaken the stability of the compounds and the affinities of their elements for one another,therefore their compound is the most stable ,and their affinity for one another is greater than of the atoms of the same element ~~the greatest and their molecules the most round ;and therefore their melting point is the lowest.~~

~~In all combinations ,the affinity of the elements for one another,the stability of their compound,its m.p.and roundness of its molecules depend on the consphericity of their elements with one another ,and the difference in intensity of their chemical forces on their faces of combination.~~

The law of cosphericity coneutralisation.

Atoms neutralise one another in two ways.1) The more elements are conspheric,that is,the more the dessphericity of the bigger element takes in the atom of the smaller element. 2) when The chemical force of the whole smaller atom is equal to that of the combination face (the face of the bigger atom on which the two combine)of the bigger element ,the more do the two elements neutralise one anothers chemica forces. And on the contrary the less conspheric the two are the greater the part of the chemical force of one not neutralised by the other.Or the greater the chemical force of one than that of the other (the chemical force of either the whole smaller atom or of the combination face of the bigger element)the greater a part of the chemical force of that element is not neutralised by the other one, when the two combine,as explained in detail in the next pages.

Now when two elements are perfectly conspheric and the chemical froce

of the whole smaller atom is equal to that of the combination face bigger ,these two neutralise one anothers chemical force completely.

Illustration of the law of conspheriсity and coneutralisation

The law of conspheriсity.

Let us take a serries of elements of which each successive one is bigger than the preceding one by the same unit of increase (as the elements W.P.62 of the successive classes of the table) as in the fig. 11 And the relative dimensions of the elements are the same. And therefore according to the law of neutralisation the ~~rank~~ intensity of their chemical lines of force are equal inall.

Now let us take the first elementand combine it with ~~another~~ an atom of its own as in fig. 11 and than combine it successively with each of the rest of the elements of the serries.

Now in the molecule of the element 1 the two atoms are the least condpheric. And as ,as already explained, in molecules of the same element about 40 percent of the force of their chemical lines remain unneutralised .Now the elements 1 & 2 are a litlle more conspheric than the atoms 1 & 1 Elements 1,3 are still more conspheric,and 1 & 4 are almost entirely conspheric,and 1 & 5 are perfectly conspheric . Now in the molecules of all these compounds their despheriсities and m.points gradually grow smaller,being the smallest in the molecules of the elements (of the compounds) 1 & 5 While their stabilities,affinities and roundness of their molecules grow greater . Now after the compound 1 & 5 the conspheriсities and coneutralisations of the molecules of element one with the rest of the elements of the serries,that is,with the elements 6,7,8 etc.commence again to decrease and grow less and less conspheric;and their desspheriсities grow again greater and greater.Thus the elements of the moleсules 1 & 6 are les conspheric and therefore,also less coneutralising than these of 1 & 5 And the elements 1 & 7 still less and so forth to the end of the serries. And their desspheriсities as graduall grow bigger and bigger.And as a result of that,a greater and greater amount of the chemical lines of force of the bigger atom remain unneutralised in the molecules of the successive

Fig. 11

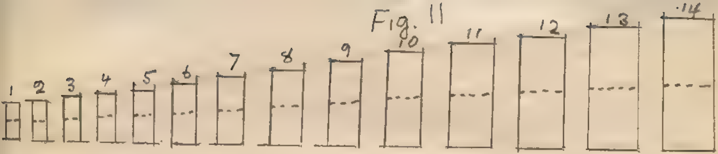
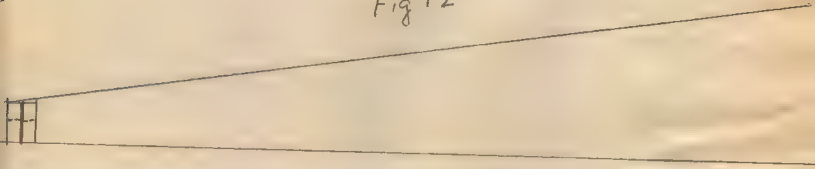


Fig 12



com ounds,with the result that the affinities,stabilities and roundness of the molecules of these compounds grow smaller and smaller,and their dessphericities,m.p. etc.grow bigger,and as described in the preceding page Serries 1 is the same as a vertical column of elements of the Table.

Now in serries 1 the difference in the amount of the chemical forces of the successive elements is such, that the chemical force of elements 8 or nine classes distant from one another differ in intensity so much that the two hardly combine. Thus if there were more classes than Re they would not combine with the class N and therefore Such elements ~~if not yet discovered~~ could not be discoverd.

The law of coneutralisation.

Coneutralisation means how much the chemical forces of the atoms of combining elements and molecules neutralise one another. That is,how much the chemical forces on the combination face of the bigger element in the molecules of a compound is equal to the force of the whole atom of the smaller element. In the case when the two are of equal amount* the two elements neutralise one another almost completely. But if the force of one is bigger,a part of its force of the other one will remain unneutralised in the molecules of their compund,when the two combine. Now when two elements are conspheric and their chemical forces are coneutralising, than their compound,as already explained, is the most stable,and their affinity for one another the greatest of all their compounds.And their molecules are the roundest and melting points the lowest. But when their forces are not equal,than their compounds are as much less stable as the amount of their inequality, and their affinities as much smaller as the difference in the amounts of their forces.And so are the consphericities of the molecules of their compounds ,and so much greater their m. points .

---

*As when the intensity of the lines of force of the smaller elements is a half that of the lines of the bigger one;but the number of the lines of force of the whole smaller atom is twice the number that of the face of combination of the bigger one.

Type W2 elements.

Serries in which the elements are of the same length but increase in thickness, as the elements of the classes of the table, are called type 2 serries. The properties of the compouns of such serries are exactly the same as these of serries 1. Thus as known, the chemical forces of the elements of a class are successively smaller ~~and~~ consequently, if the element N(of class N) combines with 3 atoms of of H, the element O will combine with less (it combines with two), and the element F with still less, clorine with stil less, Br with less than chlorine and iodine with the least.

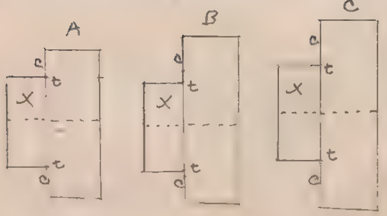
Unstability, Decomposibility and explosiveness.

As known, lines of force strive to become neutralised through meetings with the lines of force of other atoms. Therefore, the more the lines of force of combining atoms neutralise one another, the more stable their compounds are; and the less they neutralise one another the greater a part of the ~~lin~~ lines of force of one of the elements remain unneutralised, and the less stable their compounds are. This is because the elements with the unneutralised lines offforce tend to break away from the compound and unite with an element that will neutralise its lines of force more complete. The unstability of the compounds is proportional to the amount of the unneutralised chemical lines of force of the compound.

Now unneutralised lines of force are produced by 1) ~~the~~ chemical lines of force of one of the two elements (of the molecules) being of greater intensity than these of the other one, in which case when the two combine a part of each of the lines of force of the more intensive ones is not neutralised by the less intensive lines of force of the other one, & therefore remain unneutralised in the molecules of the compound.

2) To the greater difference in the size or magnitude of the two elements or to the difference of the volumes of their chemical forces. in which case the C, C parts whose lines of force are not neutralised at all, are bigger the greater the difference in the magnitudes of the two combining elements, as A, B, C "Fig. 13" (attached)

Fig 13



ties of the lines of fotce of the combining elements ;and 2)by the differ rences in the magnitudes of their combination faces;and therefore , the d differences in the magnitudes of the C.C parts of the molecules of the com pounds. This should be kept in mind by the student.

Elements of the same class have litlle affinity for one another.

Now according to what has been explained in the preceding article about the causes of the combinations of elements and their affinitied,it is seen that elements of the same length have but litlle affinity for one another. And that elements of the same length but different thicknesess have even less affinity for one another than atoms of the same element. Because,as already explained, atoms of the same element neutralise only about 60 per-cent of each others chemical lines of force leaving 40 percent unneutralised .Also that elements of a class are of the same length but of successively ~~lesser~~ thickness,and therefore of successively ~~of~~ lesser chemical forces or intensities. And therefore,in the molecules of the compounds of such elements less than 60 percent of the chemical force of the thinner element is neutralised .Because in the molecules of an element the atoms are both of the same length and thickness and their chemical forces of the same amount .And therefore , each neutralises an equal amount of the chemical force of the other one. but when the atoms are of the same length but different thickness,that is,of different chemical force,than the element(with the smaller chemical force)neutralises even a smaller amont of the chemical force of the thicker one tha when the two are of the same yhickness and lengths.And therefore thus making the compouns of thicker and thinner atoms of the same length less stable than the molecules of either element alone. Accordingly,compounds of elements of the same class are less stable even than the molecules of their elements.

Thus we have explained why elments combine,and which combine with which and with one another ,and which do not and why . We have also ex-

plained how much their affinities for one another are ,and the stabilities of their compouns.And that between some elements the affinities are so small that their compounds decompose by a touch,and that some of them explode from a touch. Now it is seen,that the behaviour of compounds are as the amount of their unneutralised chemical forces of their molecules And that this can be almost foreseen by knowing the positions of the elements in the Table and their forms.

The compounds of elements of the same class are formed mostly only by outside help and are very unstable ,the most of them even explode easily (if their copounds after decompsition are gases) The most of their compounds are mixures only ,and they combine in all proportions .And somee are of the nature of alloys.

Thus from the law of combinations it is seen that each element combines with a number of other elements,forming a serries of compounds of which the most stable one is about in the middle of the serries.And that compound being of maximum conspherecity and coneutralisation.The affinities of the element for the rest of the elements of the serries on both si sidesdecreases gradually,and so do their stabilities .

Thus we have explained how atoms and elements were formed,and why they ombine with one another,and the laws of their co binations.We will now explain describe systematicaly and in detail all their combinations.

The imponderable elements.

As known,in the division of matter there were formed a few classes of elements of extremely small dimensions. These elements are so small that scores of them would be needed to fill an neutralise the desspherictcities of even the smallest of the heavy elements,such as the elements of the class H. It therefore seen that such elements could form no definite compounds with the heavy elements,but combine with them en masse.Also they

could fill and neutralise the small part-dessphericities or interstices in the molecules of the compouns of the heavy elements. They are so small that they can neutralise entirely only the chemical forces of molecules ,but not of atoms.

The amount of the heat elements in creation is thousans or millions of times greater in volume than the amount of all the heavy elemements together,as explained in the division of matter.In fact interstelar and interplanetary spaces are filled by them.; the ether consist of them, gases are molecules of heavy elements that are completely neutralised and surrounded by athmospheres of atoms and half molecules of these elements.

Why elements combine at certain temperatures only.

We have explained,that atoms or molecules combine the readiest when they are 1)of different magnitudes ,and 2) when the chemical force of the whole a smaller atom or molecule is almost equal to the chemical force of the face of combination of the bigger one.In which case their chemical forces neutralise one another the most.

Now we will show that condition 2 can be brought about by heat. Thus when substances are heated their chemical forces are gradually(as the temperature is increased)neutralised by the heat atoms that lodge on their faces or sides in layers,and both the chemical forces and the dessphericities of the faces become gradually smaller.Now when the substances of differnt elements are heated together the quickness with which the heat elements lodge on the faces of the atoms of the different substances is proportional to the strength (intensity)of the chemical force of each of the substances.Now when elements that differ much in magnitudes and chemical force (so much as to make them nuch unconspheric and unconeutralising) are heated together -the chemical force of the stronger and bigger element is neutralised by the heat quicker, tha is, at a greater rate than the smaller one.And its dessphericity is made smaller quicker than that of the smaller one,with the result that in the heating,the faces of the bigger atom soon become of the size that is conspheric with the atom of the smaller one,and the chemical force of the face of the bigger, equal to that of

the whole smaller one)And when this stage is reached or nearly reached,the two elements combine.

Gradual rounding of atoms and molecules by heat.

Atoms are made round by combinations. That is,when elements combine they form molecules,and the molecules are more round bodies than the atoms The more atoms combine the more round their molecule become,and the smaller their dessphericities and chemical forces. Atoms can only be made into round molecules by combining with atoms of other elements,and the more round ~~when~~ the combining elements are conspheric.

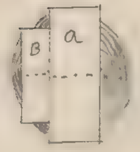
Now when atoms combine with elements that are very small,as the imponderable classes,the two can form no definite compounds with one another The imponderable elements combine with the heavy elements as already explaen masse and in all proportions,and therefore ~~of~~ the heavy elements can be made almost perfectly round by heat,with only very small dessphericities .Such a state of roundness cannot be attained by the combinations of atoms with atoms only.Because in the combinations of atoms of different elements,only one atom of the smaller element can lodge on each combination face of the atom of the bigger element,and one such atom cannot in most cases neutralise the chemical force of the whole combination face of the bigger element,as elements combine with the centers of their combination faces to one another (see art. p 76) Leaving the rest of the combination face as C.C. parts and unoccupied,and thus making its molecules unround.

Now the heat elements are the only ones that can liquefy all substances but not atoms.Because to liquefy atoms requires a very high temperature ,atoms. of almost [illegible] degrees or more,in the case of the biggest and highest ~~ranks~~ rank elements,and perhaps about 5000 degrees in the case of the smallest and lowest rank ones. And as such temperatyres are unattainable ,therefore atoms must first combine witht the atoms of other elements intD molecules, and these after that can be molten by heat.

The heat elements combine with the heavy elements by lodging on their faces or sides in concentric layers as in fig.They begin first on the fac-

W p.76

Fig.14



ces nearest to the center of the atom (see art. p. 73,and than on ~~these~~ next in the order of their distance from the center,and thus gradually making the atoms and molecules mor and more round.After the moleculed becomes t thus nearly round,than its chemical force is equal on all its sidess,all around the molecule.

Solidity,Liquidity and Gaseousness.

Solidity.

As known,atoms are chrystaline bodies and are longer than wide and t thick. Thrir dessphericities and faces are therefre of different magnitude ,and of as many correspondingly different chemical volumes and intensities The same being the case with molecules. Now the chemical force on each f face of an atom and molecule,as explained, is the strongest and the most intense at the center of it,decreasing outwards to the edges and corners Now as a result,when atoms and of molecules combine,they lodge themselves center to center of their faces ,and the middle of ~~their~~ the one length to the middle of the length of the other one.so that the centers of the faces of the combining atoms and molecules are exactly opposite to one another,and the more intense lines of force of one atom or molecule are just opposide the corresponding lines of the other atom or molecule,and the weaker lines of the one opposite the weaker lines of the other.And this arrangement holds the combining atoms or molecules fixedly and unshiftingly together. Because any shifting or change in their positions means the putting of the more intense lines of fotee of one combining atoms or molecules,against the less intense ones of the other atom or molecule,and thus cause a loss

in neutralisation ,and which is against the law of neutralisati n. For the same reason an atom or molecule ,or a molecule in a substance, cannot change its position in the substance , nor can the atom of a molecule change and shift from a bigger face of the atom it is combined with to a smaller one.And this makes the elemenrs in the molecules ,and the molecules in substances to adhere fixedly to one another and makes them solids. And thus all substances whose molecules posses faces (dessphericities) their molecules are held together immovably and are solids. Now the greater the faces of the molecules of substances the harder the substances are.

( ) Liquidity and gasiousness

In liquids,as just described, the chemical lines of force of the molecules are nearly of equal intensity all around each molecule ; and the dessphericities of the moleculesare very small and equal in magnitude. Therefore,when a liquid is heated,the heat atoms lodge on their dessphericities in the manner described in page 76,and gradtally neutralise ther lines of forceuntill they almost disappear and the molecules of the substance become almost perfectly round and free from one another. At this stage each molecule is free to surround itself with an athmosphereof heat elements and thus form a gas. And this is the origin of gaseousness.

In liquids ,as just described, the lines of force f the molecules are nearly of the same intensity all around them,only the molecules of chemically differnt liquids are of different magnitudes,and their lines of force are of different intensities. Liquids thereforecan form just as numerous compounds and in just the same manner, and by the same laws as solids do. Only all their compounds are liquids ,and of different liquidity ,from exyreme liquidity to extreme viscosity.

Absorbtion and development of heat by compounds.

As explained, in almost all compounds (even in the few whose atoms are the most conspheric and coneutralising with one another a small

part of their lines of force are not neutralised by the other one .Because no absolutely round molecules can be formed by atoms whose sides are straight And therefore an amount of the chemical lines of force of one of the elements are not neutralised by the other element.Besides that in all molecules of compounds the lines of force of the C.C parts of the atoms of the b bigger element are not neutralised by the atoms of the smaller element. Now all these lines of force are neutralised by the heat elements,And this is how the molecules of all componds contain occluded a certain amount of the heat elements.That amount ,of course,depends on the difference in the ma magnitudes of the combined elements .And therefore,the magnitudes of their C,C parts of their molecules,and the intensities of the chemical lines of the combined elements.Because the greater these differences the greater the amount of unneutralised force of one of the elements of the compound and greater the C.C parts. Thus when the element A of a compound AB exchanges (or is made to exchange) the element B for another one C ,and the element C neutralises smaller amount of the chemical lines of force of A ,than B did,so that the number of the unneutralised lines of force of A became greater (from the exchange) than heat is absorbed by the compound AC.But if C,on the contrary,neutralises a greater number of the chemical lines of force of A,than B did,heat is developed in the exchange.

Similarly,if,in the exchange,the C,C parts of the molecules of the new compound became bigger than in the old one,heat is absorbed.But if they became smaller,heat is developed. All this explanation means,that if A exchanges B for an element to which it has a greater affinity heat is developed,and if for one that it has a smaller affinity,heat is absorbed by the compound.

This is why ,when high rank elements or molecules combine with low rank ones (even if the two are of differentclasses and are more or less conspheric)as elements H & I,heat is absorbed by theircompound(Because the chemical force of high rank elements is so much greater than the chemical force of the low rank ones that in their combinations a great amount of the bigger element (high rank one) is not neutralised by the low rank one,and th therefore is neutralised by the heat elements.)

This also is why heat is absorbed in the compounds of elements of the same class as compounds C & S or N & O Etc.Because as explid in art. p.70 a great amount of the chemical lines of force of the higher rank elements remain unneutralised in such compounds and is neutralised by the heat.

Whole and half molecules,their forms and number of atoms they consist of.

According to the law of neutralisationatoms first combine into bodies of two (and these we will call half molecules)and than the half molecules combine into molecules The molecules of elements of tetrahedral and square prismatic forms consist of 4 atoms each and their half molecules of 2 atom each.prisms form molecules of 6 atoms each and their molecules consist of 3 parts or (*half molecules)of two atoms each.

Molecules cannot combine with atoms.Because the chemical force of atoms is much greater than of the molecules .And therefore the two do not combine,but half molecules can combine with atoms.

Number of the faces of the different elements.

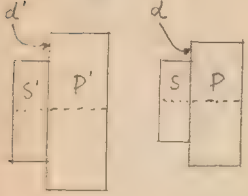
The atoms of the right or square prismatic form have six faces 4 long ones (combination faces) and two end ones.Atoms of tetrahedral form have 4 faces all combination faces.Atoms of prismatic form have 5 faces,3 combination faces and 2 end faces.Atoms of semioctahedral form have also 5 faces,1big one (combination face and 4 smallar ones. Atoms combine first on their big faces and than on their other ones,molecules do the same.

How far apart the classes have to be in order that their elements should be conspheric with one another.

The smaller the classes of elements are the nearer these of them that are conspheric with one another. Thus the hydrogen class (H)is apparentlyb the most conspheric with the class N elements,and class Be (the third and fourth from it in the table).While class N elements are the most conspheric with the class Band Al(the fourth and fifth from it)

An class Al elements are the most conspheric with class Re(The fifth and sixth from it) This is because in the division of matter,as explained,the increase in the magnitude of the molecules of the layers was uniform throughout.while,onthe contrary,the greater the molecules of a layer were the greater the difference in the magnitude between its classes of elements. (the secondary,tertiary quarternaryclasses). And therfore,the greater the distance between the classes of the twoin the table. Thus the elements [illegible] S'. P' Fig.15 are respectively bigger than the elements S,P. S' is the most conspheric with P' and S with P. But the difference d' in the magnitude of the elements S' & P' is greater than d (that between S & P.) Now the difference d is say four times as great as the unit of difference between consecutive classes of the table,while that of d' is six times that unit. Now if the element S',P' and S,P belonged to the classes of the table than S',P' whose atoms are bigger than S,P would be six classes apart and S,P four classes apart.

Fig. 15



Tthe law of indirect neutralisation of the chemical lines of force of atoms.

When an atom A combines with another atom B the two not only neutralise a certain amount (the greatest amount)of the chemical lines of force of one another on the face of their combination (the faces with which they combine) but also some of the lines of force of the other faces of the two atoms. This law had the greatest and most important effect in the division of matter. It was this law that after the first atom was created and that atom commenced to form atoms on its own sides it (that law) caused those atoms to be of different dimensions and chemical forces.That is,of different elements: Thus when an atom was created by the U,M,F that atom caused at once the formation of a secondary atom on

one of its own sides ;than on the second side,than on the third and than on the fourth . Now as soon as the first secondary atom was formed,it at once combined with the atom A and neutralised the chemical force of it on the side of their combination,and a part of the force of each of its other faces.([redacted]) Now when A caused the formation of an atom 2 on its second side(and as acording to the law of conspherici-ty and coneutralisation,that atom had to be conspheric and coneutralising with that second side').But as [redacted] the chemical force of that side was now somewhat smaller than that of the first side,therfore,the se-cond atom had to be of correspondingly smaller chemical force,and therefor had to be thicker than the first one ,and therefore,was a differnt element but of the same legth as the first one and therefore of the same class

Again the second atom too neutralised the chemical [redacted] force of A on the side it was formed on,and some of the linas of force of all the other faces of A, And the chemical force of the free sides 3 & 4 were again di-minished.And now when a third atom was formed by the atom A on its third side,the chemical force of that atom was still smaller than that of atom 2 ,and therefore [redacted] atom 3 was thicker than atom 2.Similarly,after the for-mation of the atom 3,that atom too neutralised the chemical force of the side 3 of A and some of the lines of force of the rest of its sides:and thus decreased the chemical force of the remaining side 4 of A still more ,And therefore,when A formad an atom 4 on that last of its sides,the che-mical force of that fourth atom had to be still smaller (smaller tha that od atom 3),and therefore was thicker than atom 3.And thus the 4 atoms for-med on the 4 sides of A were different from one another,each of less che-mical force than the preceding one and thicker.And as they were all formed by A,they were therefore all of the same length and classt that is the 4 were a class.

The elements of the Table,their combinations and laws.

We have explained that the chemical forces of the elements are as their

dimensions (lengths,thicknessesand widths) And the combinations of elemens depend on how much they are conspheric and coneutralising with one another. Now the more conspheric and coneutralising the combining elements are the more round their molecules are,an the greater the amount of their chemical lines of force is neutralised in their molecules. And again the more do elements neutralise one anothers chemical lines of force,the greater their affinities for one anotherand the st bler theircompounds.

Now in the table of elements the magnitudes:lengths,thicknessesand widths are given,and ~~that~~ therefore the relative amont of their chemical forces can be easily estimated from them . And therefore all the compounds each of the elements will form, and the affinities of these compounds and thrir stabilities. It is seen that how much some elements are ~~[illegible]~~ greater than one others,and how much ~~[illegible]~~ their chemical forces are. It is therefore seen that it needs more than one atom of ~~the smaller ones~~ [illegible], when assperizees and assapherizers [illegible] combine,to neutralize the chemical forces of the biggerones.Thus for instance,the element H is smaller than the element O,and therefore so is its chemical force smaller than that of O (see Table of elements),and each is smaller than the element B and its chemical force.Therefore,it needs a greater number of atoms of H to neutralise the chemical force of an atom of B than that of O(It takes 4 to 5atoms of H to neutralise one atom of B and a little less than two to neutralise an atom of O) Similarly,the elements N,O,F,Cl,Br,I are of the same class;therefore the atom O is thicker than the atom N,the atom F thicker than O the atom Cl thicker thanFetc. and therfore the chemical force of O is smaller than that of N,and of F l smaller than that of O,and that of Cl smaller than that of F etc.Therefore if it needs more than one atom of O to neutralise 1 atom of B,it will take more of F to neutralise it and still more of Cl etc.

Elements of greatest coneutralisation.

When the chemical force (the whole chemical force)of an asspheriser is equal to the chemical force of one only of the of an assapherizee,than when such two combine,the assapherizer neutralizes the [illegible] on the face of their

combination of the asspherizeecompletely,and the bigger neutralises the whole force of the smaller one.Such two are also completely conspheric :The dessphericity of the bigger comprising the whole atom of the smaller one, and their affinity for one another and stability of their compounds is the greatest.

Whole and fracion atoms.

As known,the elements of each class are greater than these of the [illegible] preceding one amount Now as there are 13 classes of heavy elements,therefore the ~~relative~~ magnitudes of the ~~classes are~~ such ,~~that the~~ elements of the biggest class are about 2,1/2 times bigger than these of the smallest class Hence: elements are no multiples of one another, And the elements of each successive class need a little more asspherizer to become neutralised than these of the preceding class:the difference between the amonts of two successive classes being a fraction of an atom of asspherizer.Thus if the elements of one class need each, say, one atom of the asspherizer,these of the class next to it would need about 1.1/6 of that asspherizer,and these of the third class about 1.1/3 of it etc. Thus elements need whole and fraction of assperizers atoms in order to be neutralized perfectly. But as there are no fractions of atoms this produced seeming irregularities in the combinations of some of the elements. Thus there are some elements in the Table that combine with less O than the position of their classes and their own position in these classes require;while some others combine with more oxigen than that of the Table requirement,as for instance the element Cd.That element combines with only one atom of oxigen ,and so does the element Zn.But according to the position of each in the Table,each should need more than one atom of oxigen to be neutralised.Now these irregularities are only seeming and are the result of the Whole and Fraction law,to wit:Atoms do not combine with one anotherif the chemical force is neutralised by that of the other one less than a half.Thus when for instance,the chemical force of an atom of an element X is of the magnitude

that it requires a little less than the chemical force of one and a half atoms of oxigen to be neutralised completely,such an element will combine only with one atom of oxigen (as there is no half or part atoms)Because if it would combine with two atoms of oxigen,more than a half of the chemical force of the second atom of oxigen would remain unneutralized in such a compound .And that is against the law of neutralization:as. Besides that such an atom (the second atom of oxigen)would be more neutralized in the molecule of its own element,and would refuse (nor could it be made to)combine with the X element. Thus the element Cd must combine only with one atom of O;and as a result a part of its chemical force is not neutralized in that compound . Now as the melting point of an atom or molecule is higher the greater the amount of its unneutralized chemical force this is why CdOis almost infusible.The same being the case with ZnO,and more or less with some other elements.

Bases and acids.

Now a coppounds as the just descibed is a base. That is,a compound of an assherizee that can combine(and wants to)with more oxigen (with mor acid).Again if the chemical force of X is instead such,that it can neutralise one and a little more than a half atom of oxigen,than it will for the same reason combine with two atoms of it instead,And in such a compound a little less than a half of the second atom of oxigen will be unneutralised ;and such a compound is an acid.Now it is easily seen why bases and acids combine with one another,and also that two bases can in common neutralise an additional atom of oxigen; and therefore do unite with such a one and form compounds of the type as Na_2MnO_4. That is,the bases Na_2O or KO and the base MnO_2 neutralise in common a fourth atom of oxigen in the compound Na_2MnO_4 or K_2MnO_4 Similarly the bases Fe_2O_3 & K_2O form ferates of the type FeK_2O_4. In this compound the amount of oxigen the two combine with is 1.1/2 atoms (instead of 1,as there is no half atoms) and is therefore to much or excessive,and the compound therefore is very unstable.And therefore in this compound a part of the oxigen atom is not neutralised and makes the compound

very unstable. It is therefore seen that all elements, that neutralise a [redacted] number of whole atoms of asspheriser plus a part of one (less than a half), combine only with the number of whole atoms, and a part of their chemical force (equal to the part atom of the asspherizer)remains unneutralized in the assherizee of the compound, and their compounds are bases. Now while these that can neutralize a number (x) of whole asspherizer atoms plus more than a half of one, combines with X + 1 atoms of the asspherizer instead ,And in their compound a part of one of their asspherizer atoms remain unneutralized. And such compounds are acids.

" " "

Now the melting points of Bases and Acids, as of all compounds, are as the magnitudes of the unneutralised parts of chemical force of the asspherizees or asspherizers, As for instance; As known, the chemical force of the atom of Nitrogen (of the class N.O.F.Cl.Br.I)is greater than that of Oxigen That of oxigen greater than that of Fluorine etc. Now the atomic melting point of the atom N(that is, the temperature at which the nitrogen molecule decomposes into atoms) Is, accordingly, greater than that of O That of O greater than that of F etc. Now let us assume, for instance, that the chemical force of an atom of Nitrogen is neutralized completely at a temp. of [redacted] 65 degrees. That is, at that temp. the molecule of Nitrogen is decomposed into atoms, and the molecule of Oxigen is completely neutralized at [redacted] 500 and decomposes into atoms. The molecule Fluorine decomposes into atoms at 4300, of Cl at [redacted] 3200, of Br at 2060 and of iodine at 1300.

Now let us take an element X whose chemical force is neutralised at 1300° degrees . The atoms of such an element can combine with 2 atoms of Nitrogen (the two neutralising the chemical force of the atom X completely Because the chemical force of two atoms of Nitrogen is also 1300°) It will combine, according to the law of Whole and Fraction [redacted] atoms, with 3 atoms of oxigen into XO_3. only an amount of the chemical force of one of the atoms of oxigen, equal to 2000 degreesof heat will remain unnetralised An the compound XO_3 That is, the thrioxide XO_3 will melt atb a temp. of 200°C.

Again X will combine with 3 atoms of F forming XF.as the chemical of 3 atoms of Fluorine is equal to 10000 degrees of heat therefore,an amount of the chemical force of X F equal to a 100 degrees of heat will remain unneutralised in the molecules of the compound X F,and the melting point X F will be 100. For the same reason X will combine with 4 atoms clorine (of R \ W)and the melting point of the compound will be 20 etc. Thus this is what determines the fusibilities of substances or their melting points.

The 3 fifferent melting points.

There are 3 different melting points in nature,to wit: 1)the melting point of substances or the common melting point,2)The melting point of [redacted] half molecules and 3) the melting point of atoms. That is,if a substance be heated it melts.When its liquid is heated farther it turns into a gas and the gas is heated farther its molecules decompose into half molecules This is the melting point of half molecules. Now if the gas of half molecules be heated still farther the separateor decompose into atoms.Thi is the melting point of atoms No temp. can do the last the heat elements are not strong enough for it.The heat elements cannot even decompose molecules intó half molecules,except perhaps of the smallest and lowest rank elements.

From the explanations on page 93 it is also seen why the melting point of nitrides are generally higher than of Oxides ;and of oxide highr than these of Fluorides,and of Fluorides higher than of Cloridesetc. That is,the melting point [redacted] of some nitrides are higher than these of all Oxides,and these of some oxides are higher than of any Fluorides etc It is also seen that when a compound is infusible it is because a great part of the chemical force of one of the elements of the compound (of either the asspherizer or assoherizee) is not neutralised by the other

(?) The melting points of the compounds of a class of abandoned elements with the same asspherizer.

Let us take for instance class N.O.F.Cl.Br. [redacted] and I elements and their

compounds with Hydrogen Now the chemical force of [redacted] Nitrogen (from calculations of the properties of its compounds) is equal to the force of 2 19/20 atoms of Hydrogen. Tha is,if there were such a thing as fractions of atoms,than 2and 19/20 of atoms of Hydrogen and 1 of Nitrogen in combining would completely neutralize one anothers chemical forces,and their compound would be a liquid.) And the chemical force of one atom of Oxigen is equal to 1.9/10 of Hydrogen. That of one atom of Fluorine is equal to that of 1.1/20 of H; That of one atom of Cl (of RAW) is equal to 1.1/8 atom of H; that of 2.8/10 atoms of Br (of RAW) to one of H,and that of 2.9/10 of R A W atoms of I to 1 of H.

Now as there are no fractions atoms,therefore the Whole and Fraction atom law makes each of them to combine with whole atoms . It makes the atom Nitrogen to combine with 3 atoms of H instead.It makes Oxigen to combine with 2 atoms of H,and Fluorine to combine with 1 atom of H,and Cl to combine with 1 of H instead of 1.1/8. It makes 2.[redacted] of Br to combine with 1 of H instead of 12/13 [redacted] 2.8/10 of Bromimine atoms;and finally 3 atoms (of R A W) of I to combine with 1 of H(instead of 2.8/9 of I)

Now as a result of that in the molecule NH_3 1/19 of the chemical force of one of the atoms of H is not neutralised. And to neutralise that completely (That is to make it a gas) it needs a temp. of 239 absolute degrees.

In the molecules of H O one tenth of one of the atoms is not neutralised And in order to neutralize that (to gasify it)it needs a temp.of 484° abs. zero.In the molecule of the compound F H

Elements combine both Atomically, Semimolecularly and Molecularly.

Elements combine not only atomically, that is, atoms with atoms, but also semimolecularly: half molecules with half molecules and atoms with half molecules; and molecularly, that is, molecules with molecules. The compounds of asspherizee atoms with half molecules of an assphèrizer are recognized generally by a gap in the series of its compounds with that assphèrizer, That is, by the absebce of the compound preceding the one with the half molecule; or by a sudden increase in the number of the atoms of the asspherizer in the last compound of the aspherizee. Thus for instance Thallium forms two compounds with Oxigen Tl_2O and Tl_2O_3, but no Tl_2O_2. Now Tl_2O_3 therefore consist of $Tl_2O + O_2$. Because the absence of Tl_2O_2 shows that Thallium cannot even combine with one atom of Oxigen, but the molecule Tl_2O can combine with a half molecule of O; because the chemical force of a half molecule is only a third that of the chemical force of an atom. Similarly Osmium forms 4 compounds with Oxigen ~~Os, Os, Os an~~ Os O, Os_2O_3, OsO_2, and OsO_4 and no compound of OsO_3. now according to the table of elements, Osmium can only combine with about 2.1/3 atoms of Oxigen and OsO_4 is a compound of OsO_2 with a half molecule of Oxigen $(OsO_2 + O_2)$. Now OsO_2 dont exist in a free state

Reactive and deaffinitive stages.

In order for elements to combine with one another ~~tho~~ two conditions are required 1) That the molecules of one or both the substances or elements (to be combined) must be loose and free to move 2) the two elements must be more or less fairily conspheric & conneutralizing with one another. Now these conditions are called the reactive stage. The reactive stage can be broght about 1) by heating the ~~tho~~ two elements to a cartain degree 2) by solvents, 3) by partially neutralising the element with the greater chemical force through combinations.

As known, when elements whose chemical forces differ greatly in intensity and their atoms in magnit[illegible]ed togetherb, the chemical force

of the greater element is (as explained so ewhere)Neutralised by the heat at a quicker rate than the smaller one,and the two gradually become more and more conspheric and coneutralising,and thus reach the reactive stage.

Now if elements after reaching the reactive stage are heated farther ,their chemical forces are farther neutralised and diminished,in the proportion,as described,their conspheriocity and coneutralisation are gradually diminished,and with it their reactive stage and their affinities for one another.This is called the Deaffinitization Stage. It easily seen that,the smaller the elements are or lower their ranks,the lower the temp.of their reactive and deaffintizatio stages. Thus for instance the elements of classes N & Li are in the reactive stage already at ordinary temperature ;~~while H, being smaller than Li, is already considerably in the deaffinitization stage at normal temp~~.While H being smaller than Li is already considerably in the deaffinitization stage at normal temperature That is,the elements of all compouns of H have already at ord. temp.less affinity for H than for the elements of classes N & C and H is replaced by them.

The replacements of elements by one another when heated together.

When a compound is heated together with an element of a bigger class,or with an higher rank element(of ~~the same class as~~ its own class)Than that(lower rank or smaller)element of the compound becomes deaffinitised (from the heating),and the element that the compound is heated with, on the contrary,becomes reactive.And than the other element pushes out the deaffinitised element of the compound and takes its place. Thid is why elements,already at normal temperature or at slight heating with acids or water,decompose and push out the element H from the acid or water and take its place.And that is why,for instance, copounds of the metals with the class Nitrogen elements as oxides,Fluorides,Clorides,etc.when heated with the class C elements (as C.P.S,etc.which are bigger than these of class N elements)'are pushed out and replaced by them. Because at the temperature the class N elements become deaffinitized the class C elements (which are

bigger and their chemical forces respectively greater)become reactive.

And that is why the elements of class Carbon force out and replace the elements of class Beryllium(which are smaller than class C)And in their turn,the class C elements are forced out,replaced by the elements of class Boron [redacted](which are bigger and their chemical forces greater)than of class Carbon elements).And this is why the lower rank elements of class B ,as the element [redacted] Si etc. are forced out by B whose rank is higher than theirs.

The orthorhombic elements do not,as known, combine with one another ;and therefore do not push out and replace the assspherizer classes of elements from their combinations with orthorhombic assphrizees,except at unattainanly high temperatures.

Roundness of molecules,melting points and why all elements combine atomically only with the classes H.N.Cand B

"Different elements preffer to combine with one another to atoms of their own elements.Because different elements are more conspheric Because elements of different classes are generally more conspheric and coneutralising than atoms of the same element,and their chemical forces are more neutralised (when they combine)than the chemical forces of the atoms of the same element do.

"Again the smaller and more round the molecules of compounds are ,the more neutralized the chemical forces of their component elements are ,and the greater the affinities of their elements for one another.And vice versa.ALSO the atoms of the classes [redacted] H.N.C are,as known, half round,while these of orthorhombic classes are not.The molecules of the [redacted] classes H. N and C with the orthorhombic elements therefore are very round,and their compounds very neutralized.And this is the aim of the law of neutralization .While all these things are much less the case with the molecules and the chemical forces of the compounds (of the molecules)of the orthorhombic elements with one another.

or the [illegible] of [illegible]
[illegible]

The atoms of the elements of classes H.N and C are half round (see tabl of elements) ,while these of orthorhonbic classes are rectangular.

The H.N.C classes form with the orthorhombic (and ~~with their own classes~~) very round molecules (the H.N.C classes form apparently,the roundest molecules of all),while these of the orthorhombic with one another are not ~~qu~~ quite round.

The chemical forces of the orthorhombic elements are neutralised by the H.N.Cclasses the best,while these of the orthorhombic with one another ~~the~~ less.As a result of that,the melting points of the first are moderate to low,and the~~ir~~ compounds are easy fo(m)ring,while these of the second are unattainably high,and their compunds impossibly hard to form.

The elements of the orthorhombic and H.N.C classes are also more conspheric and coneutralising because the orthorhombic are secondary and the H.N.C are tertiary (and the chemical force of one of the faces of the orthorhombic elements can neutralise a whole atom of the H.N.C classes,as explained in article page,,,,While the elements of the orthorhombic alone are al secondary and are much less conspheric and coneutralizing. with one another

We have explained that the reason why the left hand classes do not combine with one another is,that they need unattainably high temp. to be made combination conspheric and coneutralizing.Now this is corroborated by thee fact that even the high rank elements of the right hand classes (the classes H.N.C) such as the elements Nitrogen,Carbonand Phosphor on account of their greater chemical forces,need already a very high temperature to combine with the orthorhombic as Nitrides,Carbites and Phosphides of the metals [redacted], And as known,the intensities of the chemical forces of even the lowest rank elements of the left classes are greater than the chemical forces of even the highest rank ones of the classes H.N.C.

Alloys.

Alloys are by far compounds of molecules with molecules (not with atoms)of different elements,and only a few are apparently semimolecular, and therefore alloys are mostly not of definite composition.This is why they are easily decomposed at low temperatures,and many of them are simple mixures,and

so are their properties: mixures of the properties of their components.

Solvents.

A solvent is simply a liquid, the chemical lines of force of whose molecules are of such low intensity as to just neutralise the chemical force of the faces of the molecules of certain solid substances, in which case the two combine. (And that is called the solid is dissolved on the liquid) The molecules of a solvent therefore, (the same as the molecules of solid substances) when they combine with the molecules of a solid, neutralise and diminish some of the chemical lines of force on the rest of the faces of the molecules of their compound. Of course, solvent compounds are easy decomposable, therefore.

Now, as known, the smaller the desspheridicities or chemical forces of the elements of the classes and of each element of the class (that is, the lower the rank of an element of a class), the smaller the amount of heat they need to become neutralised. And therefore, the lower the temperature at which they become combination conspheric, coneutralising, reactive, deaffinitive and decomposable; And the lower their melting and boiling points. Thus the H class is the smallest, and therefore the melting and boiling point of the Hydrogen class is the lowest . Hydrogen combines with the elements of the other classes at comparatively low temperatures (the temperature being lower the smaller the elements of the other class is, and the lower and nearer to the middle of the class the rank of the element is. And vice versa, the bigger the other class is and the higher the rank of its element the higher the temperature at which it combines with it. Because the Hydrogen element is so small it is in the deaffinitive stage already at normal temperature.

Elements are made combination conspheric and coneutralising by heat, solvents and combinations.

In order that elements or the molecules of different compounds should combine with one another their chemical forces must be made combination conspheric and coneutralising. Now this can be done by heat, solvent,

heart [illegible]

[illegible] elements [illegible] with or

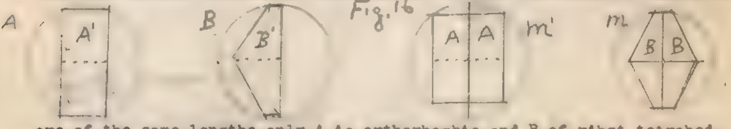
[illegible]

and combinations. Because, in heating, the chemical forces of the atoms and molecules of the heated substances, are gradually neutralized by the chemical forces of the heat elements (that combine with them) The same eff ect is produced byb combinations. Thus when an assspherizee combines with one atom of an assspherizer the chemical forces of the uncombined faces of the aspherizee become partially neutralized from it, so that it will combine now with other asspherizers with which it would not combine before. Assspherizers thus reduced, will combine easy with elements with which they could not before. Thus for instance, Ti and B do not combine directly, only perhaps at a temperature of about 10000 to 20000 degrees. But after the chemical force of each is reduced by an atom of Oxigen. the molecules of Ti O and BO combine [redacted] easily, and at moderate temperature. Similarly AG and N do not combine. Because the chemical forces of the two differ very much in strength, Ag being the lowest rank element of its class, and N the ~~hiest rank~~ highest rank one of its class, But when the chemical force of N is reduced by two atoms of Oxigen, the molecule NO_2 combines with Ag.

The differences between classes of elements of the same length, but of different forms, as orthorhombic and the forms of the H.N.C ~~forms~~ classes.

Elements of the same lengths but of different forms as the orthorhombictetrahedral or semioctahedral forms. form molecules with greatly different dessphericities, chemical forces, sp. gravities and atomic weights and also roundness of the molecules and therefore of melting and boiling points. Thus the atoms A ND B of the accom p. fig. are of

Fig.16



are of the same lengths, only A is orthorhombic and B of rihgt tetrahedral forms. Now it is seen that the molecule (M) of the tetrahedral element B is more round than the molecule (M') of the orthorhombic element A. And the chemical dessphericities and intensities of its lines of force, melting point and boiling points of the molecules of B are about

? or more times smaller than of the molecules of A Because the ends of atom B taper,the specific grav.of B is therefore smaller than that of the element A And therefore the molecules of B enter combinations at lower temperature than these of A. (yet in spite of all that,the chemical force on one of the sides of B is almost as great as on one of the sides of element A.

The laws of conspherecity and coneutralization. of Secondary Tertiary Element

The aim of force is ti neutralise and be neutralized. And the greatest degree of neutralisation is attained when the combining elements are conspheric and coneutralizing with one another, and the molecules of their compounds are about round. Now atos are conspheric when the desspherecity ~~was~~ of the bigger element comprizes the whole smaller element,and the chemical force of the face of combination of the bigger atom penetrates the whole force of the smaller atom. ?) When the amount of the chemical ~~...~~ force of the bigger element on each of its combination faces is about as much as that of the whole atom of the smaller element.in which case the ~~tw~~ two elements neutralize one anothers chemical force the most.

Now this is why the orthorhombic and the H.N.C classes of elements have the greatest affinity for one another. Because the H.N.C classes of elements are the very tertiary classes of elements that were formed by the orthorhombic secondary ones in the division of matter (see diagram:molecules of the layers of our Solar Sphere) And therefore neutralize one anothe the best,and with have the greatest affinity. Thus the chemical forces of the orthorhombic (secondary) classes and of the tertiary are of the proportion ,that the chemical force of a whole atom of the tertiary, is about equal to the chemical forceof only one of the co bination faces of the corresponding orthorhombic ones (when the two elements are conspheric with one another or nearly so). That is, taking two atoms that are conspheric with one another,one orthorhombic secondary,and the other(the smaller one)a tertiary (of any form) than the chemical force of the whole atom of the teriary is

about equal to the chemical of one combination faces of the orthorhombic bigger atom.This and the fact that the tertiary elements are of the form that when they with orthorhombic,they form round molecules,is the reason why the two form the most compounds with one another,and their affinities for one another are the greatest,greater than theseof the ortorhombic classes for one another,or of the tertiary classes (the classes H.N.C)for one another.

Melting Points of the classes and of the elements of each class. And the temperatures at which they become combination conspheric,coneutralizing,reactive,deaffinitive etc.

As known,the smaller the atoms are,the smaller are their chemical forces,and the smaller are their chemical dessphericities or chemica volumes,and the smaller molecules and the temp.at which their atoms become combination conspheric,coneutralizing,reactive,deagfinitive,and their melting and boiling points;and the easier therefore they form combimations.

Thus the elements of class H(the first of the right hand classes) are very small (the smallest of all) The elements of the H class therefore me melt and boil at very low temperatures.(lower than that of any other class) Hydrogen noils at about & -240 It is c ombination conspheric at very low temperat.So that at ordinary temperature it is already partiallyin the dea affinitive stage. And that is why it combines harder is replaced from its compounds with the classes N & C by the orthorhombic classes.The compounds of H melt easier than these of any other class and decompose by heat easirer.

Class Li elements.

Class Li the first of the left hand classes (the orthorhombic classes) The elements of class Li are of Orthorhombic form,and the first and smallesr of them. The elements of the class melt at between 198° and 29. The elements are combination conspheric,and coneutralizing at moderate temperatures,and so are their reactive stages.Thus the Li class combine with the class N elements at ordinary temp.and with the class C elements.

Class Nitrogen

Elements of the third class,class N and the second right hand class The elements of class Nare of tetrahedral form,They are somewhat bigger than class H The melting and boiling points,combination conspherícity,coneutralization,reactivity,deaffinitization stages are correspondingly greater than these of the H class. Their melting and boiling points are brtween -190° and 107°

Class Be,the second orthorhombic class.

The melting points of class Be elements are somewhat (about 500 degrees) higher than these of class Li. their melting points are between 600-900 Their combination conspherícity,coneutralisation,reactive and deaffinitive stages are correspondingly higher.

Class C

Class Carbon,the third right hand class,is probably of the same form as class N. Class C being next to class N,therefore their melting & boiling points,combination conspherícity,coneutralization,reactive and deaffinitization stages are somewhat higher than these of class N.The meltig points of the class are between 0-450 (that of Te)

Class B.

Class Boron has the properties of both the left and right hand classes: it is right prismatic in form,and has the slenderness of the secondary (orthorhombic) elements. Moreover it is of greater differentiality of dimensions,that is slenderer than the orthorhombic. ~~Now~~ Therefore the chemical dessphericities of the elements and molecules of the class,and the intensities of their chemical lines of force,are greater even than these of the orthorhombic of the same legth. As a result,the melting points of the elements of the class are greater than of the orthorhombic of the same length

Thus the M.P. of Boron is 2300° (it would be about 1500° if it were a normal secondary orthorhombic element of the length as B) The combination conspherícity,coneutralization,reactive and deaffintization stages temperatures are correspondingly high. Having the form of a right hand class

makes the element to combine with the orthorhombic classes the same as the classes H.N.&C do But being of such high rank of slenderness,thei compouns are mostly semimolecularly .

Class Al.

The elements of class Al are of orthorhombic form,and consist of 4 elements.The elements of the class are of less dimensional differences than all the other classes of orthorhombic elements.That is,they are stockier than the elements of all the other orthorhombic classes.Therefore, the intensities of their chemical lines of force and their affinities etc. are smaller than s the corresponding elements of other orthorhombic elements of the same length.And this is why the affinities of the class are more for the lower rank elements of the classes H.N.& C That is,they are for F.Cl etc. and for S.Se Te rather than for N & O Or C & P Thus the affinity of Al is greater for F than for Oxigen,and for Cl Br; S and Se than for O And this is one of the reasons why Al does not replace the element Be when heated with Be O. It is also why Zk (the second element of the Al class) preffers Cl to F,and why Cd preffers Br to all the N.O.F Cl.I and why Tl preffers I,and why the melting points of the Al class are lower ; and why their combination conspherlcity,coneutralization,reactive and deaffinitization stages are correspondingly lower.

Now the combinations of the elements of classes H.N.C with the classes bigger than class Al are begining to be successively less and less conspheric and coneutralizing,as the difference in their magnitudes becomes greater and greater,and require therefore successively higher temperatures to make them combination conspheric and coneutralizing ,and their compounds become less and less stable.

Atomic compouns of the element Hydrogen.

Hydrogen forms atomic compounds only with the first 5 nearest classes of elements,to wit Li.N.Be,C,and B.This is because the Hydrogen atom is so small that with the class Al elements it already unconspheric The elements of class N are so much bigger than H,that they can combine

with all the classes without being unconspheric to beyond the combination limit even with the last one. (Although it is probable that if there were (perhaps there is) classes of elements bigger than class Re these elements could not combine with the class N elements, as the two would be to much unconspheric already. And such elements therefore could not be discovered.

We have expl'd that the left hand classes can form no atomic compounds with one another only with the classes H.N.C and B. With the first 3 (the classes H.N.C) they combine atomically, but with the class B only semimolecularly. This is because the class B elements are bigger than classes H.N.C and also because their elements are to much of high rank, that is, to slender, and therefore their chemical forces to intense. They form semimolecular compunds with only the smaller classes as classes LiBe, Al, Ti, but not with the big classes as Cr, Mass, Mo, and Re. elements whose atomic chemical forces are of great or greatest intensities; and whose combination temperatures are perhaps betwen 5000-10000 degrees.

Class Be type

In the division of matter, as explained, each atom created by the U.M.F. caused the formation of a class of elements on its own 4 sides, and this was the origin of the classes of the table. but there is apparently, in the table one class of elements that were not formed that way or they are not a real class [illegible] as the first 3 remaining central atoms of the molec. [illegible]. See fig. page 3 [illegible]. And this is the class of Be. In that class the first two elements only are the same as in other classes, the other 3 differ in all 3 dimensions: moreover they increase in length and thickness, as in the figure on the other page. The class Be elements, besides that, are slightly stockier than the elements of the other classes (their stockiness being a trifle less than that of the Al class

As a result, the chemical intensities, and chemical volumes of the elements of the class, the melting points, sp. heats etc. unlike these of the elements of the other classes vary as follows: The element Be is of the dimension and chemical dessphericity, that it preffers F to N&O, and the elements Mg. Ca. St. and Ba, as a result of their peculiar dimensions preffer Cl to N.O. and F. The chemical intensity and dessphericity of Be the great

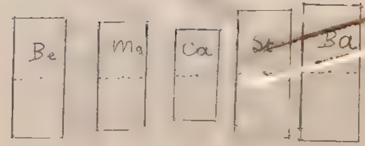
test in the class, and Be can neutralise 2atoms of Oxigen.The element Mg can neutralize about 1.1/2 atoms of Oxigen. Ca can neutralize 1.2/3 of Oxigen, St about 2.1/4 and Ba about 2.1/2.The chemical intensity of St is a trifle bigger than that of Ca. and that of ~~Ba a trifle bigger than that of~~ Ba a trifle bigger than that of St, And the melting points of Ca, St, andBa are successively greater; thus the melting point of Mg is smaller than that of Be, while the melting point of Ca St and Ba are on the contrary, successively bigger.

Fo Fig Page 115

Combinations are affected by a number of factors.

The combinations of elements (that is, which elements will combine with which and in what proportion) are dependent on and regulated by seven factors: 1) conspheriсity 2) coneutralization 3) whole and fraction atom law 4) form of elements 5) slenderness of the elements of the classes6) reactovity and deaffinitization stages 7) temperatures. Of these factors the first 3 can be foreseen from the table or deduced approximately: the first two from the position and distance from one another of the classes to which the elements of a compound belong in the table and from their ranks. As for instance; we know that classes apart as 1 and 3 or 1and 4 are most conspheric with one another, while these farther than that a art are less conspheric etc.Or that when the rank of an element X is such that it should be best neutralized ,say, by the asspherizer O, is instead best neutralized by ForCl.We know that this is because X needs an atom and a fraction of an atom of oxigen,. but cannot get it, as there are no fractions of atoms, and two whole atoms of For Cl will netralize it, it therefore preffers them, giving thus the appearance that it preffers F_2Cl to O . The fourth factor cann also be deduced, but not always .Because there is no way yet to find out exactly the forms of many elements, as for instance, the forms of the elements of the classes N and H whi have so far not bein crystalized and so forth.

Class Be



Now the fifth factor :the difference in the slenderness of the classesof elementsas explained in art. page .... and is easily understood. The sixt factor,the reactive and deaffinitization stages, have been sufficiently explained and is easily understood,and so is the seventh(temperature).

Combinations of partly neutralized elements with one another and with more assphierizer

And

The law of combination of assphirazees successively with atoms of the same assphierizer.

As explained,when the chemical force of two elements A & B differ to much,the two do not combine with one another.But if the element with the greater chemical force (A) combines first with another element(C), whereby its chemical force is partially neutralized and reduced;and if the reduction is a certain amount only (not to much or to little); than the molecule A,C will combine with the element B,As for instance,Ag does not combine with N or O;because the chemical force of either is much more intense than that of Ag (as seen from their ranks in their classes) But when 2 atoms of Oxigen combine with an atom of Nitrogen,the chemical intensity of the oxigen atoms is much reduced by the atom of nirogen,and the remainder of the chemical force of the oxigen atoms is about combination conspheric with that of the Ag atom,and than the two combine into Ag,NO_2.

Secondary compounds.

Compounds of partly neutralized elements are called Secondary Compounds.It is easily seen,that the melting points of secondary compounds are lower,and that they therefore combine with one another at lower temperature Secondary combinations are more numerous than the combinations of elements Thus carbonates,phosphates,sulfates etc.are secondary compounds (combintions of partly neutralized elements).Thus $CoSO_4$ 7 HO is a compound of the molecules Co O plus $S\ O_3$ 7 H O.The molecule $S\ O_3$ cannot combine with the atom Co (whose chemical intensity is much greater than that of the molecule $S\ O_3$)

But after its chemical intensity is reduced by the atom O, than the molecule Co Ocan combine with the molecule S O_3

Thus as known, the elements of the orthorhombic classes Li, Be, Al, B Ti, Cr, Mass, Mo, and Re do not combine atomically with one another. But when each combines first with an atom of the elements of the classes H.N.C (from which their great chemical forces or intensities and chemicel volume etc. are reduced, than they combine easily. Because the smaller the chemical forces of molecules, the lower the temperature at which they combine with one another, forming compounds such as phosphates, carbonates, nitrates, chlorates, iodates, thungstates, molibdates etc. Secondary compounds therefore melt easy, and form combintions at lower temporatures.

Compounds of elements, with more than one atom of the same asspherizer, at the same time.

No elements can combine with more than one atom of any other element at the same time. Because, if an element combines with an atom of another element, the chemical forces on all the faces of the two atoms become somewhat neutralized and reduced by indirect neutralization (see indirect neutralization). And therefore, that element cannot combine with another atom of the same asspherizer on any of its other faces (whose chemical forces, as just explained, became partially reduced) under the same conditions as with the first one, but needs other conditions. Therefore as a result, no element can combine with more than one atom of another element at the same time; but only successively with one after the other one, that is first with one, than with another one etc. Thus this is the reason why asspherizees form a number of compounds with each asspherizer instead of one compound only.: as for instance Titanium forms 4 compounds with oxigen: Ti O, Ti_2O_3, Ti O_2, Ti O_3

To make it more plain we will descibe it in more detail. Thus when an element combines with an atom of asspherizer, ~~the chemical forces~~ on one of the chemical forces on its other faces become also somewhat neutralzed and reduced in strength from indirect neutralization, and it can combine with

no more asspherizer unless conditions are changed That is,the other faces of the asspherizee need now different conditions with more of the asspherizer.In the same manner after the asspherizee combined (under the new conditions)with a second atom of asspherizer,again the rest of the faces of the asspherizee become still more reduced,And the asspherizee again cannot combine with any more of the asspherizer,unles conditions are changed again.And this is why an element combines only with with one atom of asspherizer at a time,and cannot combine at once with more than one atom of it.And that is why it forms a succession of compounds with each asspherizer .

Now the greater the elements of a class are,or the higher the rank of an element in a class is,the more the number of asspherizer atoms it can combine with,and the greater the number of asspherizer compoumds it forms ,vice versa.

Basic and acidic compounds.

As already explained,according to the law of neutralization,"when atoms,half molecules and even molecules combine,they neutralize not only the most of the chemical force on the face of their combination,but also a small amount of the chemical forces of each of their other other faces." Now this produces the following effects: 1)That when two elements combine, if the chemical force of the asspherizer is smaller so that a part of the chemical force of the asspherizee is not neutralized by it(the asspherizer), then the compound is a Base.That is,such a compound can farther combine with more acid. That is,with more of the elements of the classesH.N.C(which classes we will now call acids). Butb if a part of the chemical force of the asspherizer remains unneutralized,then the compound is an acid. Such a compound can still combine with more base or bases,that is,with orthorhombic elements,or with partially neutralized orthorhombic elements.

Thus let us take an asspherizee A and asspherizer B,whose chemical forces are such proportions that,when the two combine the asspherizer neutralises $3/4^{ths}$ or 15/20 ths of the chemical force of the asspherizee,on the

face of their combination ,and 3/20^{ths} of the chemical force of each of the other faces of the asspherizee(faces2.3.4) by indirect neutralization(the chemical force of the asspherizer is assumed to be entirely neutralized)

Now when such an asspherizer and asspherizee combinev on one of their c combination faces 15/20^{ths} of the chemical force of the combination face of the asspherizee os neutralized,and 5/20^{ths} remain unneutralized.While on the faces 2.3.4 three twentieths of the force of each became neutralizedThis compound therefore is a base,because a part of the chemical force of the asspherizee on the face of the combination of the two remains unneutralized.Now the chemical forces on the faces of the elements of this compound are as follows:the chemical force of the asspherizee on its face One is 5/20^{ths} ,and on each of the faces 2.3.4 it is 17/20^{ths}.

Now if the asspherizee combines with another atom of the asspherizer on its face 2,that second asspherizer atom will again neutralize 15/20^{ths} of the chemical force of the second combination face(face 2),and 3/20^{ths} of the chemical force of each of the rest of the faces (faces 1.3.4).Accordingly ,after combiningb with the second atom of asspherizer,the chemical forces on the different faces of the asspherizee are as follows: on each of the combination faces(faces 1and 2) it is 2/20^{ths} ,and on each of the uncombined faces (faces 3 & 4) it is 14/20^{ths} .Now this compound is also a base, a small base.

Now if the asspherizee combines with a third atom of asspherizer, again the asspherizer atom will neutralize 15/20^{ths} of the chemical force of the combination face 3,and 3/20^{ths} of each of the faces 1.2.4. But it is seen that the chemical forces of the faces 3 & 4 is now only 14/20^{ths} ,and on the faces 1 & 2 it is onlyn 2/20^{ths}. Therefore the asspherizer atom 3 will neutralize on face 3 all the 14/20^{ths} of the force there and 1/20th of its own force will remain unneutralized there. Similarly,as on of faces 1 & 2there is only 2/20^{ths} of chemical force now.Therefore,there too, after neutralizing these their forces, 1/20th of its own force will remain unneutralized on each of these faces. And thus the compound of the asspherizee with 3 asspherizer atoms is an acid.

Now the chemical force of the faces of the elements of the compound are as follows: on each of the faces 1.2.3 one twentieth ($1/20^{th}$) of the force of force of the asspherizer is not neutralized, while on face 4 eleven twentieths ($11/20^{ths}$) of the chemical of the asspherizee is not neutralized. Therefore, if the asspherizee combine on face 4 with a fourth atom of asspferizer $4/20^{ths}$ of the force of the asspherizer will not be neutralized; the same amount being the case on each of the faces 1.2.3 Thu the compound of the asspherizee atom with 4 atoms of asspherizer is too an acid, but a bigger. one.

Example 2

Let us take another exa.plein which, the chemical forces of the asspherizee and asspherizer are of such magnitudes that of the ass'r being greater than that of the ass'zee that, when two combine the asspherizer neutralizes $18/20^{ths}$ of the chemical force of the asspherizee, on the face of their combination, and $1/4^{th}$ (or $5/20^{ths}$) of the forcesof each of its other combination faces.

Now in this compound it is seen, that $2/20^{ths}$ of the chemical force on the first combination face of the asspherizee remain unneutralized. And therefore the compund is a small base.

Now again, ~~the chemical~~ if the asspherizee combines with a second atom of asspherizer, that atom will neutralize the $15/20^{ths}$ of the chemical of the second combination face. But as the chemical force of the asspherizer is $18/20^{ths}$ therefore, $3/20^{ths}$ of its own force (the asspherizers) remains unneutralized on face 2, thus making the compound a middle sized acid.

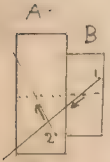
NOw after the combination of the asspherizee with a second asspherizer atom the chemical forces on the faces of that compound are as follows: on each of the combination faces 1 & 2 three twentieths ($3/20^{ths}$) of the chemical force of the asspherizer are unneutralized; and on the uncombined f faces 3 & 4 of the asspherizee, the chemical force of each face is $10/20^{ths}$ or a half the original amount. And this makes farther combination of the asspherizee with more asspherizer atoms impossible. Thus an asspherizer & asspherizee form only two compounds, one a small base and the second a meddium acid.

Indirect neutralisation and its Quota

As known, in atoms the chemical lines of force of each side of it, go to and issue on the other sides of it, as in fig. where the arrows show the birth place of the line and the direction it goes and the side it issues on.

As known, when two atoms combine, they not only neutralize the lines of force (the biggest part of them) of one another on the face of their combination, but a certain small amount of their lines escape meeting (on that face) and penetrate into the asspherizee and asspherizer and meet with and neutralize there some of the lines of force that go to the other faces.

Fig. 17



That small amount of the escaped lines of force is called the indirect neutralization Quota. The accompanying fig. is a molecule of the compound A & B (A the asspherizee and B the asspherizer); and line 1 of the asspherizer escaped meeting at the face of their combinations and penetrated into the asspherizeeand meets there with its line 2 (that goes to one of its other faces) and neutralizes it.

Unneutralization of neutralized lines of force.

As explained, when an asspherizee and asspherizers combine, or when two atoms combine, then the indirect neutralization quota of lines of chemical force of each of the two elements, penetrate into the body of the other one, and meet with the lines of force of that other one and neutralizes some of them. Now if the lines of force that they meet with, are already neutralized by otger lines of force, (lines of force of other atoms) than they unneutralize them instead ~~by~~ to unneutralize the lines of the other atoms. Thus in fig. 18 the indirect lines of force 1 & 2 of the two atoms A &B have met

Fig.18

at p and neutralized one another. Now when A combines with a second atom of asspherizee (B") as in fig. 2, and one of its lines of

force (as line 3) meets with the same line 2 of atom Aat a point lower th than p,at a point t,than the line 1 of atom B'is unneutralized and set free again ,as in fig. And this is how when lines of indirect neutralizatio penetrate into the atoms of compounds and find all the of its force already neutralized by the lines from other atoms,they unneutralize them by neutralising the others. (the dotted parts of the lines are the parts that became neutralized from meetings).

Combinations of A with many assphFerizers.

As known,the chemical force of N is greater than that of O,and of O is greater than that of F,and that of Fgreater than that of Cl etc. Now if ,as explained, an atom A combines with two atoms of Oxigen on two of its f faces,and if the chemical forces on the other two of its faces of A as a result,have diminished so much that they cannot combine any more with the atom of oxigen;then since the chemical force of the element F is,as stated, smaller Acan combine with an atom of F on its third face.

Again after it combined with an atom of F on its third face,the chemical force on its fourth third face has diminished so that it cannot combine with an atom of F,than it can combine with an atom of Cl(as the chemical force of Cl is smaller than that of Fetc). Thus this is why elements(assphFerizees) form compounds with O,F.Cl,etc.together,that is, they form compounds with many assphFerizers together,as for instance compoundsM ~~O F Cl or M O F Br or M F Cl etc.~~ M AS M O F Cl or M O F Br or M F Br I etc.

Section 3

Thus we have explained the formation of the elements,and the laws and bylaws regulating and affecting their combinations.We will now describe in detail these their combinations with one another.That is,which combines with which and why,and the affinities and stabilities of their compounds and their whys;and also show how they all are the results of the dimensions of the elements and of their forms,and positions in the table of Elements,and their conspehericity and coneutralisation with one another.

The table of Elements.

Left and Right hand classes.The arrangement of the classes in the order of their magnitudes. Vertical columns of elements.

1	2	3	4	5	6
Li	Na	K	Rb	Cs	
Be	Mg	Ca	St	Ba	
Al	Zk	Cd	Tl		
Ti	V	Fe	Cu	Ag	
Cr	Mn	Co	Ni	Pd	
Ma	Cb	Th	Hf	Rh	
Mo	Ru	Ta	Ur	Au	
Re	W	Os	Ir	Pt	

1	2	3	4	5	6
	H	He	Ne	A	
N	O	F	Cl	Br	I
	C	P	S	Se	Te
B	Si	Se	As	Sb	

In the page of Table of Elements the classes are divided into two divisions,one consisting of the secondary or left hand classes,and the other of the tertiary or right hand classes

In each division the classes are arranged in the order of thei magnitudes.

The Table is also divided into vertical columns; the elements of each vertical column are of the same relative dimensions,and therefore,of the same chemical intensity. but differ in magnitudes

The classes are also arranged laterally:that is some are more to the right and some more to the left. This is according to the slendernss of the elements of the class. That is the slenderer the classes of elements the greater the che ical forces of its elements,while the more to the left its position in the table is,the stockier its elements are and less their chemical forces.Their lateralness also shows which of the vertical columns of asspherizer the elements of the class prefer to combine with. Thus the class B is more to the left than the rest of the classes; and so is element N of the nitrogen class It is seen that both B is are almost on the column division line.This shows that B preffers N & O to the rest of the assphierizers of the class Nitrogen. ~~The~~ It also shows why B,as seen, is the only element that has as great an affinity for Nitrogen as for Oxigen. Now Be according to its position will preffer Fto the rest of the class N asspherizers,and preffer O next The same being the case with Al. On the other hand elements Li,Ti, Cr,Mass, Mo, amd Re preffer Oto the rest. Similarly for instance,in the last vertical column the elements Hg,Ag,Pd,Pb,Rh,Au, & pPt preffer Ito all the others of the class N,esp.Hg while Ant does not,nor Ba (seeexplanation art.type Be class.

The combinations of the elements of the classes H.N.C consecutively with each of the other classes.

We will now explain the copounds each of the elements of the classes H.N.C' forms with the orthorhombic or secondary classes. And will C. class being omitted

therefore beginning with the element H (the first element of the first class) and the only element of the class that can form compounds. besides the elements Hel and Neon, each of which can form a few. Because H is the highest rank element of its class. And therefore its chemical force is the greatest than of the rest of the elements of the class, the chemical force of Hel besmaller than that of H, and of Neon still smallerEtc. While the chemical forces of the fourth and fifth elements of the class, as Argon and Crypton are already so small that it would take a score of each of them to neutralize the chemical force of even the smallest and lowest rank element of the table. And such an amount, as well known, cannot lodge on the combination face of any atom. And this is why they cannot combine atomically with any of the other elements.

H and class Li elements.

H and class Li elements, both being so small, combine already at ordinary temperature. Now as H, as explained, is somewhat in the deaffinitive stage at ordinary temperature, and the two are only a little conspheric (their two classes being next to one another) their affinities are not great for one another, and therefore they combine slowly and womewhat unwilling.

The combinations of H with the consecutive elements of the class Li are as the consecutive compounds of a series. The compounds of Li and H are solids, Because class Li is an orthorhombic class, and Li is of the highest rank of the class, and none of the orthorhombic classes are made liquid or gaseous by H.

H and class Nitrogen elements.

The elements of class N although bigger, but being of tetrahedral etcM forms, therefore combines with H also at low tempe ature. It does not combine with the two highest rank elements N & O at ordinary temperature these two at ordinary temp. are not in the reactive stage yet, but become so at slightly higher temp. And therefore H combines with them at slightly higher temp. He combines only with the elements of the middle of the class

at ordinary temp.the elements F & Cl.as these are in the reactive stage at ordinary temp. With the lower rank elements Br and I which are nearly in the deaffinitive stage at ordinary temperature already, it does not combine direct at no temperature

The compounds of H and N clsass elements are gases,because theirmolecules are very round: the elements of the two classes being either tetrahedral or semioctahedral in form. They combine quicker than H with the Li class, because they are more conspheric than H & Li class elements.

Now the number of H atoms each element of of the class N combines with is greater than the number each element of the class Li combines with.and the greater the rank of the element of the N class is, the greater the number of the H atoms it combines with.

H and Be classes.

H and Be classes of elements combine as follows: With the elements Be and Mg hydrogen combines at higher temp. than with the elements N & O. Because ~~the Be Mg~~ Be and Mg are orthorhombic and N,O are tetrahedral; With the middle element Ca it combines at ordinary temp. because Ca is small. With the elements St and Ba at higher than ordinary temp. The compounds are solids, because the Be class is orthorhombic

H and class C elements.

Class C elements are still bigger than class Be, and therefore combine with more H than Be. H and C classes are a little less conspheric than H and Be class. The molecules of the compounds of H and C elements are very round (the class C elements being tetrahedral in form),and therefore the compounds of C & H are gases. Being less conspheric, their compounds are less stable and their affinities smaller than these of H and class Be.

H and class B elements.

The class B elements is the fifth and last class with which class H forms atomic compounds. Class B is bigger than class C, and therefore its

its elemenrs still less conspheric with class H than class C. And the compounds of H and class B are are still less stable and their affinities smaller than these of classes of H and Be. As the elements of class B are also of tetrahedral form their compound with H are therfore als gases The class B elements combine with a greater number of H atoms than class C The class B elements do not combine with H directly and at no teperature. As already stated, above .

H and the rest of the classes of elements .

The element H combines with the ~~rest of the~~ classes as follows: with the right hand classes (N. C. B. see table below) & the first 2 orthorhombic classes (Li & Be) it combines atomically; with the first half of the rest of the orthorhombic classes semimolecularly, and with the last half of them (as divided by the line of dashesc of table ~~page~~) it forms mixures, or is only absorbed by them. That is with these classes it does not combine at all, but simply forms condensations. That is, each of these elements absorbs a certain volume of the element H (in the order of the magnitudes of these elements and of their classes)

Li Na K R Cs	H Hel Neon
Be Mg Ca St Ba	N O F Cl Br I
B Si Se As Ant	C P S Se Te
Al Zk Cd Tl	B Si Se As Ant
Ti V Fe Ni Ag	
Cr Mn Co Cu Pd	
Mas Cb Th Haff Rh	
Mo Ru Ta Ur Au	
Re W Os Ir Pt	

H does not combine atomically with the orthorhombic, because their chemical forces are so much greater than that of H, that the two are beyond the limit of combinations.

The affinities of H for the elements of each successive class is according to the law of conspheric and coneutralization . Thus ~~H therefore~~

t with which it is more conspheric

begining from the class Li ~~gradually~~ increases to the class Be, and than gradually decreases from class to class. While with the right hand classes it is the greatest with the class N, decreasing gradually from class to class. (with which it is conspheric the most) In each class it increases from the highest rank element to the middle of the class, and than decreases to the other end of it. Thus the affinity of H for Mg is greater than for Be, still greater for Ca, less for St & still less for Ba.

Post molecular chemical force or attraction.

As known, the chemical force of atoms are neutralized through successiv combinations. The greatest part of it is neutralized when the atoms combine into half molecules. A lesser part of it is neutralized in the combinations of the half molecules into whole ones. The third greatest amount is neutralized in the combinations of the molecules into substances But a small part of it remains unneutralized after the combinations of the molecules into substances. This part is called The post molecular ~~chemical~~ chemical force. or Post Molecular Attraction or Affinity. This remnant force exist only in solids (and not in liquids or gases, as in liquids and gases the molecules are not combined but are loose. [Now this post molecular affinity or attraction of substances is greater in the lowest rank elements of the heavy classes]

Absorption and conduction.

Now when solids and liquid or gases are brought together, and the atoms and molecules of the gas are so small as to be able to crowd tro through the interstices of the solid. the molecules of such a gas are absorbed by the solid, when the chemical forces of its molecules (not atoms as the chemical force of such size atoms would be much greater than the Post-molecular force of the solid) are conspheric and coneutralizing with the Post-molecular chemical force of the solid.

Now when the atoms of one of the elements are still smaller, so small (as the imponderables) that they can pass through the interstices of the solid absolutely free, such elements permeate the solid (when the chemical force of its atoms (not molecules) is conspheric and coneutralizing with the Post-Molecular force of the solid) With the greatest speed, producing the phenomenonof conduction.

Combinations of the classes N & C with the orthorhombic classes.

The combinations of the classes N & C with the orthorhombic ones are in all respects similar to these of the element H with the only difference, that the class H elements, being much smaller than the classes N & C, can combine atomically, only with the first few classes of the elements that are next to it in the table, and not with the rest of the classes, Because the chemical forces of the elements of the rest of the classes are so much greater than that of the element H, that according to the law of conspherіcity and

Coneutralization they are beyond the limit of combination with it.But it is different with the classes N & C which are bigger,and their chemical forcesbigger than these of H.They can combine with the elements of all the classes of the table,even with the highest rank ones of the heaviest classesThat is,they can neutralize a sufficient amount (more than a half)of the chemical forces of any of the elements of the orthorhombic classes,and combine with them without reaching the non combination limit.

Now in order to make the combinations of the classes N & C clearer & more understandable,wi will divide the table of elements into vertical columns.

Now the elements of each vertical column are of the same rank. Thus the elements of column one of the only two elements of number 1 rank of the table,the elements B & N (of the right hand classes).Column 2 (There are two such columns:column 2 of orthorhombic and column2 of the right hand elements) consists of the rank 2 elements of the classes etc.

The chemical force of each successive element of a class is smaller than that of the preceding one , while that of each successive element of a vertical column (begining from the top of the table)is,on the contrary, greater than that of the preceding one.

Again the farther apart the elements of a class are,the greater the difference in the amount of their chemical forces.The same being the case with the elements of the vertical columns,only the vertical columns each successive element is also biggerthan the preceding one. Now the result of this is that ,in the case of the vertical columns,when we take any one of its elements,as when we take,for instance, element 1,than the classes 2,3, and 4next to it aere more and more conspheric and coneutralizing with it, and their affinities for it and the stabilities of their compounds with it are greater and greater.But after that,the farther apart they elements are ,the less conspheric and coneutralizing they are with the element 1,and less and less their affinity for itis is ,and less the affinity of atom 1 for them, and the weaker the stabilities of their compounds with it,as for instance,the elements of classes 1 & 5 ; 1 & 6 ; 1 & 7 etc. are successively less and less conspheric and coneutralizing with one another,and their affinities for one another and the stabilities of their compounds are successively smaller.

the successive elements of

And according to their magnitudes and chemical forces, the classes N & C are the best [consphe ic] and coneutralizing with the corresponding elements of the orthorhombic classes. That is, the chemical intensities of the different elements of these classes are a half of the intensities of the corresponding elements of [redacted] orthorhombic classes. And this is why the elements of each of the orthorhombic classes are most best neutralized and prefer to combine with the elements of the N & C classes of corresponding rank. Thus the chemical forces of the elements of vertical column 1 of the orthorhombic classes (as all the elements of each vertical column are all secondary and of the same intensity) prefer to combine with the elements of vertical column 1 of the N & C classes. That is, this is why the elements of each vertical column of orthorhombic prefer the elements of the vartical columns of the N & C class which is of the same rank as its own. Thus if we divide the classes H N & C into vertical columns, as in the accomp. fig. we see that the elementsof the vertical column 1 of orthorhombic elements are better neutralized by the tertiary elements of vertical column 1 of asspherizers, and prefer to combine with them to all the other columns (to the columns 2.3.4.5), And the preferences of the elements of the orthorhombic column 1 for the columns 2.3.4.5 of the asspherizer s, is inversely proportional to their distance from it. Thus the next best liked by the column 1 of the orthorhombic elements are the elements of the vertical column of asspherizers next to the first. That is, the elements O & C of vertical column 2, and the next after these they prefer the elements of column 3 (the elements F & P) And the next to these the elements Cl & S of column 4, than the elements Br & Se of column 5 and finally the elements I & Te of column 6

In the same manner and for the same reason column 2 of the orthorhombic prefer column 2 of the H.N.C classes, the elements O & C to the rest of the columns, Their affinities for the elements of the other columns, as already stated, being inversely to their distance from them, sSimilarly column 3 of orthorhombic elements prefer column 3 elements of asspherizer, the elements F & P For the same reason column 4 of orthorhombic elements prefer column 4of asspherizer.

and column 5 of orthorhombic prefer column 5 of the asspherizers, the elements Br & Se, and lastly column 6 of orthorhombic prefer the asspherizer elements I & Te of column 6.

Now as a result of this, the asspherizer that is the most prefered by the elements of an orthorhombic column can push out and replace all the other asspherizer elements from their combinations with the elements of that orthorhombic column (except when prevented by the Whole and Fraction law. Thus, for instance, Oxygen which has a great affinity for the elements of vertical column 2 of orthorhombic elements (the elements Ti, Cr, Mas, Mo, and Re) can push out all the other asspherizers from their compounds with them. Thus oxygen decomposes the Nitrides, Fluorides, Clorides, Bromides and Iodides of these elements taking their places. Similarly F has a greater affinity for the elements of orthorhombic column 3 and pushes out and replaces all the other asspherizers from their compounds with them. Its compounds with the ~~column 3~~ vertical column 3 of orthorhombic elements are therefore more stable than its compounds with the elements of all the other orthorhombic columns; and its affinities for the elements of the other orthorhombic columns is inversely as its distance from them on both sides

Similarly Cl has a greater affinity or preference for the elements of the orthorhombic column 4. And Br for the elements of the orthorhombic column 5, and I for these of column 6.

Now the reason of these phenomena is, as alreadyexplained, that elements of each vertical column are of the same relative dimensions and chemica intensity. But different from these of the elements of the other vertical columns. The same being the case with the dimensions and chemical intensities of the different vertical columns of the asspherizers. Now, when elements of left and right vertical columns, the intensities of whose chemical lines of force are not as two to one, and the magnitudes of the two are not conspheric, combine, the lines of force of one of the elements of th their compound are not neutralized completely by these of the other one, and its C C parts are bigger too. But when the intensities of the chemical forces of the two are as 1 to 2 than the chemical lines of force (of their

combination area) of the two are perfectly neutralized. And this is why the elements of the right and left vertical columns, the intensities of whose chemical lines of force are as 2 to 1, prefer to combine with one another than with any of the others.

The nearer a vertical column is to the middle of the table of elements, the greater the number of compounds it forms.

As known, the farther apaprt 2 elements of a vertical column are, than the distance of their greatest consphericity and coneutralization. Or, ont the contrary, the nearer to one another they are than that distance, the less conspheric and coneutralizing with one another they are and the smaller their affinities for one another, and weaker the compounds they form with one another. Now as their distance from one another increase their affinity for one another deceases, and when their distance apart reaches a certain magnitude they cease to combine with one another, or combine very hard and only with the help of others. Now therefore, the more a vertical column of the orthorhombic elements is to the middle of the table, the nearer it is to a greater number of the rest of the columns of the table, and the greater the number of compounds its elements form with the elements of these columns and greater the number of the stable ones, and vice versa. Thus N has a greater affinity for the elements of orthorhombic column 2, as it is nearest to it than to any of the others. Its affinities for the elements of orthorhombic column 3 are smaller, as column 3 is farther from it, and its compounds with column 3 elements are harder to produce and are fewer and less stable . Its affinities for the elements of column 4of the orthorhombic elements are still smaller (column 4is still farther from it) Its affinities for the elements of column 5 of orthorhombic are still smaller and their combinations are still fewer, and with column 6 orthorhombic it forms almost no compounds. Thus the column Cl is in the middle of the table and therefore forms the greatest number of compounds with the orthorhombic columns of elements and the gretest number of stable ones.

Column 2 elements and O

Column 2 of orthorhombic elements form the most stable compounds

---

Combination area is the area that an asspherizer occupyes on the combination face of the assspherizee.

with Oxygen (the asspherizer of the column). With F their compounds are less stable; with Cl still less stable;with Br still less,and with I they have so little affinity,that the last elements of the column ,the elements Mo and Re,the farthest from I in the table,do not combine with it.

Column 3 elements and Fluorine

Column 3 orthorhombic elements form the most stable compounds with F(the asspherizer of the column). Their compounds with O and Cl are the next in stability. Their compounds with Br are fairly stable,but not so much wwith I.column 3is nearer to the middle of the table than column 2 is and therefore is nearer to more columns than column 2 is.And therefore for forms a great number combines with a greater number of the orthorhombic elements and a great number of stable ones.

Column 4 elements and Cl.

Column 4 of orthorhombic elements is as near to the middle of the table as column 3 is and Cl is the assph rizer of the column. Column 4 forms the most stable compounds with Cl.Its compounds with F and Br are quite stable,these with O and I are somewhat less stable .The number of c compounds of the orthorhombic elemen ts with Cl is as great as they form with F,and the compounds are as stable Accordingly F forms a greater number of compounds than O does,and Cl a greater number than F The number of orthorhombic elements Br combines with is less than Cl,and these with I ~~stillless~~. is still less Fluorine has an affinity for a greater number of orthorhombic elements yhan either O, Br or I.And Cl for a greater number than either F.O.Br or I,while oxygen has an affinity for a greater number than N

Column 5 and asspherizer Br.

Column 5 is nearer to less columns than Cl or F ,and forms accordingly less compounds. Br is nearer to columns 4 and 5 and its compounds with them are good and stable-------

Column 6 and the assspherizer I

I is nearer to less columns than Br,it is nearer to as many as O.Its affinity therefore is greater to the elements of column 6,and second to these of column 5,than to these of column 4 and so forth.I therefore decompose ses the nitrides,oxydes,fluorides,chlorides and bromides of the elements of column 6 forming Iodides with them.Its affinity for the elements of each successive orthorhombic column is successively smallar and weaker,so that it hardly combines with the elements of orthorhombic column 1 and even 2.

Thus we have explained that different vertical columns of orthorhombic elements prefer and are neutralized the best by correspondingly successive vertical columns of assspherizers,assspherizers whose chemical intensities are a half that of the chemical intensities of the elements of the column.We will now show by a few examples the affinities of the elements of the orthorhombic columns to their particular assspherizers,and how that affinity decreases as the element of the orthorhombic dolumn grow bigger Thus let us take the oxydes of columns 2 and 3 of orthorhombic elements,and see how easy they decompose and give up their oxygen.

	Oxydes of col. 2		Oxydes of col. 3
Not reduced by H	Li O	Not reduded	Na O
	B O	"	Mg O
	TiO	" by H	Si O
Red. 1/2 atom	Cr O	Red. 1 atom	V O
	Mas O		Cb O
Red. to met.	Mo O	" 1/2 "	Mn O
" " "	Re O	" 1 "	Ru O
		Not entire To metal	W O

Thus the oxydesof the first 4elements of column are not reduced by H.The

fifth and sixthare reduced partially,while the sevenyh,eighth etc.are reduced more or less entirely The column 5elements are reduced a little more than the column 2

Acjual preferenceb by columns of orthorhambic elements for particular assphericers.

We will now show how the columns of orthorhombic elements prefer each a particular asspherizer Thus the elements of vertical orthorhombic column 4 are as known the elements: K Ca Sc Zk Fe Co Th Ta Os Now Cl iss the asspherizer of the column,Thus K prefers Cl to O as it burns in Cl better than in O,and so does Ca,because when Ca Cl is heated to redness in access of air it forms only a small fractionn of CaO. Zk OH+Cl H gives Zk Cl Mn O boiled in Cl H gives Mangan Chloride.Co hydrate Cl H gives Co Cl. Th not changed when heated in F H but with Cl H it is.

Example 2

Column 6 consist of elements: Cs Ba Ant Tl Ag Pd Hg Rh Au Pt ad I is the asspherizer of the column. Thus Rh Cl+I K in Cl H gives Rh I Ant unites with I at ordinary temp. With heat. HF,HCl do not act on Ant only HB and HI; Ag HCl+HI acids giveAgI;. AuCl+2I give AuI; Pt+HCl+HI giv PtI; PdF+I gives a black precipitate.

Thus we have shown of the orthorhombic vertical columns of elements,each column combines preferably with the elements of a particular column of asspherizers classes(seep 148) (see p 148) Now O is the prefered asspherizer of the orthorhombic column W; and F of column 3 And Cl of orthorhombic column 4; Br of column 5 and I of column 6.

The elements of the corners diagonally opposite in the table of elements.

Now,sd explained, the conspherícity and coneutralization of the elements of the table decrease with their distance from one another both ho-

rizontally and vertically. Now as a result of that, the elements that are diagonally opposite in the table are farther apart than the ends of each class or of each vertical column; and therefore are both less coneutralizing and conspheric, and their intensities differ the most. And therefore have the smallest affinities for one another, and have the least desire to combine; less even than the ends of the classes and of the vertical columns. Thus this is why Oxygen combines with the elements Ag Hg Pt Ir Rh and Pd more difficultly than with the rest of the elements of the table. Because ~~the first~~ these elements are on one corner of the table and Oxygen on the other one diagonally opposite to the first. Now N & H are still farther from them diagonally than O, and therefore do not combine with them at all. For the same reason the elements Br, I, Te form compounds most difficultly with the elements of the table diagonally opposite to them, as the elements Mass, Mo and Re etc. Even the elements W, Ru and Cr combine with Br, I and Te difficult and the Bromides and Telurides of Re, Mo and Mas apparently are not interatomic but semimolecular compounds.

The table of the right and left hand classes of elements.

There are 17 classes of elements in nature. Of these about 4 are extremely small and are the classes of heat, electricity, X-ray and various emanations. These are not given in the table. The remaining 13 classes are the heavy elements. The 13 classes of heavy elements are of two kinds: right and left hand classes, 9 left hand classes and 4 right hand ones. See table pp. 22-24. The intensities of the chemical forces of the elements of the right hand classes are abou a half that of the respective elements of the left hand ones. Thus the intensities of column 1 of right hand elements is about a half of these of column 1 left hand ones; and these of the elements of column 2 right hand classes are a half of column 2 left hand ones, and these of the right hand column 3 are a half of the intensities of the left hand column 3 etc.

As explained, the intensities of the chemical forces of the assphenizee classes ~~classes~~ of elements, are about twice as great as of the correspondign elements of the assphenizer classes, and the assphenizee classes are (with the exception of two of them) bigger than the H N C assphenizer classes. And it is because of these their differnces why the two prefer to combine with one anothe than each to combine with the elements of its own classes But it is different in the case when the elem ents of the left han classes that are smaller than the right hand classes combine with them. Thus for instance, when the class Li elements combine with O. In this case the Litium elements are the assphenizers.

Now the chemical intensity of Li is about twice that of O. while the law requires that the chemical force of the assphenizer has to be only a half of that of the assphenizee (the bigger element). And therefore in the compound LiO nearly a half of the chemical force of the ~~chemi~~ atom Li remains unneutralized, and therfore the affinities of these elements for one another will be small.

Now the chemical intensity of the element Na is a little smaller than that of Li, and in its combination with Oxygen AS NaO, a somewhat smaller amount of its chemical force will remain unneutralized in their compound. And therefore the affinity of Na for O will be a little greater than that of Li. AND likewise the chemical intensity of the element K (of the same class) is somewhat smaller than that of Na, and therefore in its compound with O a still smaller amount of its chemical force will remain unneutralized in their compound KO than in NaO molecules, And therefore the affinity of K for oxygen will be greater than that of Na. In the same manner the chemical intensity of Rb is smaller than thatof K, and in its combination withO a still smaller amount of chemical force will remain unneutralized in the molecules of their compound RbO than in the molecule KO. And therefore the affinity of Rb for O will be greater than that of K. And finally the chemical intensity of Cs (the last of the Li class) is still smaller

than that of Rb and in the molecules of its compound with O a still smal ler of chemical force will remain unneutralized,and the affinity of Cs for O will be greater than that of Rb (the greatest of all the elements of the class) Thus this explains why the affinities for Oxygen of the elements of the Li class gradually increases from Li to Cs,instead of decreasing as is the case in the combinations of all the other orthorhombic classes with O. And as would be the case if the elements of class Li were bigger than these of the classes N & C elements.

The Be class is the second orthorhombic class of elements which are sma smaller than the elements of the class C asspherizers. And this is why the affinities of the elements of the class Be also increase from Be to Ba,instead of decreasing.Thus the affinity of Ba for C P & S is greater than that of St,and that of St is greater than that of Mg etc.It is also why the affinities of Baand St forb Sulfur is greater than that of the element Mg and Ba for it.

The amount of asspherizer atoms the orthorhombic elements need to be completely neutralized.

The most atoms of the most elemens have 4 combination faces (atoms do not combine on their end faces)The chemical force of no element is great enough to neutralize 4 asspherizer ayoms completely.Yet there are elements that combine with 5 and 6 of the same asspherizer atoms In such compounds apparently the asspherizer on some of the combination faces are half molecules instead of atoms As for instance, in compounds with 5 asspherizer atoms on 3 of the faces of the asspherizee the asspherizer is an atom,but on the fourth it is a half molecule of the asspherizer In compounds with 6 atoms of asspherizer,on two faces of the asspherizee the asspherizer is atoms and on a half molecule a piece.

end

SECTION 4.

The condensation of the matter of a solar sphere into planets and a Sun and its how's and why's ,and their internal structure or geology.Of course of this last little or nothing can be known of any of them except that of our own planet,the earth,and a little of the surface of its satelite the moon.

Condensation of the divided matter of each solar sphere into a sun and planets.

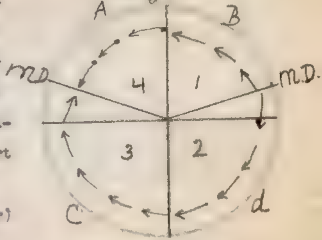
Now no sooner was the division of matter over than the molecules of each solar sphere began to condense. As known, in thme division of matter into atoms,the atoms formed on the 4 sides of each central atom were caused by the law of indirect neutralization and were of different specific gravities.And as a result of this,the matter of a solar sphere also consisted of 4 quarters,with the elements of each quarter being of different specific gravity: as on fig.1 P 87 thus the difference between the sp. gravities of the elements of quarters 1and 2 being X,between quarters 2and 3 being twice X,and between the elements of quarters 3and 4 three times X.

Now since the sp. gravities of the elements of a solar sphere increased from the periphery to its center,therefore each molecule of a solar sphere was attraered both centerwards and laterally.Therefore as soon as the division of matter in a solar sphere was over,aech molecule left its athmosphere of imponderable elements (see page) and commenced to fal both vertically and laterally,that is it fell in a curve or orbit.And thus each molecule of the heavy matter acquired orbital motion.But as the attraction centerwards was many times greater than laterally,therefore the orbits they acquired were very elliptical.

Now the difference in the sp.gravity of the matter of the quarters of the solar sphere,caused the molecules of one half of the solar sphere to acquire orbital motion in the opposite direction to that of the other half And also the two halfs not to be equal,but one a little smaller and lighte in weight than the other one. Thus fig.1 is a solar sphere.

and the sp.gravities 1.2.3.4 of its 4 quarters.The line MD,MD divides it into two unequal halfs.Thus as a result of such variation of the sp. gravities,the particles on the two sides of the division line MD as particles p, p' were attracted in opposite directions and acquire motion in opposite directions to one another,as indicated by the arrows.And the matter of the part of the sphere A and B were moving in opposite directions to the matter of the other (bigger) half. C 1 D

Fig 1



Excess-Matter, Solar Sphere & its 4 quarters 1,2,3,4

Now it is easily seen that as the number of the molecules in a solar sphere was immense,therefore,after they acquired orbital motion,they immediately began to collide with one another,either from opposite direction or at angles.Now these that collided from opposite directions lost their orbital motion at once and fell directly to the center of the sphere(or the Sun),while these that met at angles,their resultant particle did not fall to the center but formed a new orbit,which (according to the rule)was smaller than the first one and a little less elliptical.Now as it commenced to move in its new orbit,it soon again collided,and again either fell to the center of the sphere(when it collided with a particle from opposite directions or when it collided with one at an angle formed a third orbit, which was smaller and less elliptical than the second one.Thus repeating the same thing again and again and falling gradually to the center of the center of the sphere or Sun.

Excess matter.

Now in the way described above,of the molecules of the two opposite moving halfs of a solar sphere,these of the smaller half collided with an equal amount or weight of molecules or particles of the bigger half(and their resultant particles all fell to the center or Sun)and leaving a part of the molecules of the bigger half unmet. And these left over particles were therefore all moving in the same (general) direction.

And these remaining unmet particles are called The Excess Matter;The "Isomobilous Excess Matter."

Now out of that isomobilous small amount of matter the planets were formed, while all the rest of the matter of the solar sphere fell to the center of it and formed the Sun.This is because particles moving in orbits in the same general direction (in directions less than 180 degrees apart can never fall to the center of the solar sphere from collisions,only their orbits become smaller and less elliptical, and when they become round they cease to cross one another & dont change any more, that is more round.And a sphere of such moving particles as seen later, spontaneously divides itself,from collisions,into concentric belts,and than each of the belts condenses into a planet(from the same collisions of its particles)as explained in detail farther on.

The condensation of a Solar Sphere begins from its center.

The condensation of a solar sphere starts at its center.Because the nearer the molecules of a solar sphere are to its center the smaller were their orbits,and therefore,the oftener their revolutions around it are,and the oftener they cross one anothers orbits,and the oftener they collide, and the sooner they condense.Therefore,the nearer a planet is to the center of Sun,the sooner was it formed.After a planet starts ~~at the center~~ it grows by attracting the particles from the belt, that are near to it.But as the orbits of the particles it atracts are bigger than its own,therefore its orbit grows to becames bigger too, and that brings brought it again near to the next particles,and after attracting the next particles its orbit became bigger again ,and brings brought ~~near to~~ it again near to the next particles,and so forth and so forth.

The speed of the axial motion of planets.

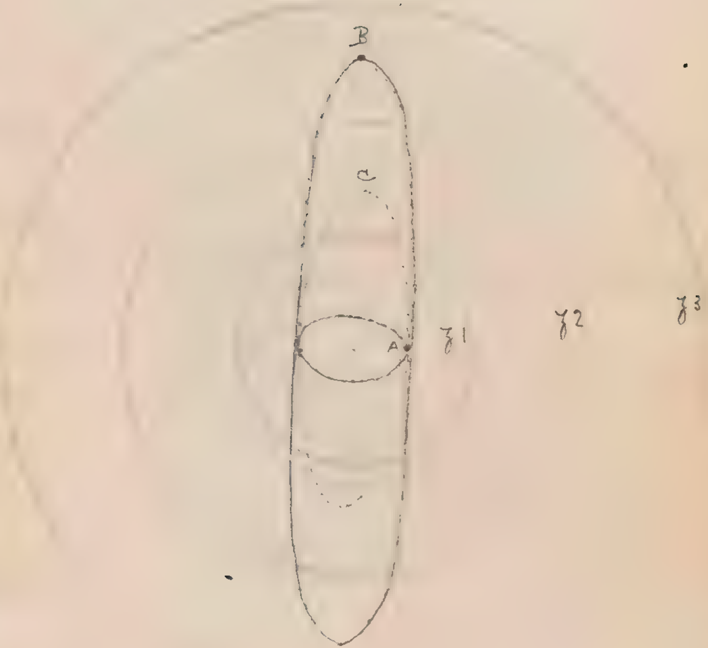
The bigger planets are,and the heavier the elements they consist of,the quicker their axial motion is. Because,as known,planets grew from the particles and planetoids they attracted,and therefore,the bigger the planet was and heavier its elements,the greater was its attraction power, and therefore,the greater was the distance from which it attracted the planetoids and particles,and the greater were the momentums the planetoids

acquired in their fall to the planet,and greater the inclination of their fall.And as the particles were all of the excess matter,they fell to the planet from the same side;and as their fall,as stated, was much inclined ,their momentums were convrted mostly into axial motion : making the axial motion of the planet much quicker

In the process of condensation of the planets,by far the greatest amount of the excess matter is condensed to the middle of the sphere,and a small amount only to the central part of it,and a somewhat bigger amount to its peripheral part or zone(see fig.2 p89A)This was because the orbits of the molecules and particles in the begining were very elliptical,and therefore,if a paticle of the perpheral zone as particle B(see fig. 2) in passing ,in its orbital motion,the central part of the sphere,collided there with a particle A,its orbital motion momentum was divided between the two,and its orbit,as a result,became about a half its length(as orbit o') ,and the resultant particle C thus became a denizen of the middle zone.Now in this way the greatest amount of the matter of the central and peripheral parts or zones of the solar sphere were condensed to its middle(of the solar sphere).ANd from that matter the planets Jupiter and Saturn were formed;and that is why these are so big.

Now as the central zone was small (although its matter was the haeviest of the solar sphere) the depletion of its matter from the transportation was so great that it became so rare in some parts(especially in one part)that it could condense only into planetoids,and these were so far apart from one another,that they did not meet and could not condense into a planet.And that is why the planets of the middle of our solar sphere (the planets Jupiter and Saturn) are so big; and the planets of the peripheral zone(the greatest of the 3 zones) are only of meddium size,and these of the central zone are so small;and why planet Mars is so small;and why the existence of the belt of planetoids.

Now ,as known,"the bigger a planet is,and bigger the sp. gravity of its elements,the greater its axial speed is" this is why the axial speeds of Jupiter and Saturn are so great,and of the planets Neptune and Uranus only meddium,and of Mercury,Venus,Mars and the Earth are so small,and why


B
C
A
z1
z2
z3

, that of moons is so small, and none perhaps in planetoids.

Intermixure of the elements of a Solar Sphere in its Sun and planets by transportation. And the number of elements & their amount in each planet

As known, each layer of a solar sphere consisted of elements different from these of the other layers. But from the manner of condensation of the solar sphere the elements became intermixed by transportation. Thus each planet was formed from the matter of a few (very few) layers only, from the layers situated between the perihelions and aphelions (circles) of the planet (That is, if we take the perihelion distance of the planet and draw a circle around the center of the solar sphere, and than take its aphelion distance and draw another circle, around the first) But to every planet some of the elements from the other layers were admixed by transportation (in the manner described) in bigger and smaller quantities from the other layers, according to their distance from the planet of these other layers, as for instance, the earth consisted of about 3 classes of elements of its own belt (the belt it was condensed from) while the heavy elements such a Gold, Platinum, Iridium etc. were created in the central layer of the solar sphere, and were transported to it in moderate quantities (as the central layer is not far from the earth while from the far out layers of the peripheral zone the elements were transported to it only on small quantities from the farthest ones very small quantities, and from some almost nothing And this is why in the earth a few of its elements are in great amounts, some in moderate and some in small amounts and some in very small.

A planet at its last stage grew from big planetoids.

Every planet in its last stage of development grew from big planetoids. Because in the begining of the condensation of the matter of a solar sphere, the molecules collided with one another into small particles. Than the particles collided into bigger ones, than into still bigger ones etc. until they reached the size of a small planetoid. Than these small planetoids collided into bigger ones and than into still bigger one and final

into big planetoids. And thus a planet at the end of its development grew from big planetoids. And thus all the latest mountains of the earth are landed big planetoids.

Now since the earth itself was already big at about the end of its growth it attracted the planetoids from great highth; and therefore, these in their fall acquired great momentums; and when they landed on the earth, they developed great amounts of heat and each collapsed into a mountain of crushed materal. Now that heat was gret enough to melt some of their matter and to decompose their (~~easier decompsable~~) hydrates, oxides, nitrides, fluorides, chlorides etc. (~~as molecules were compounds~~); and thus to develope great amounts of H.N.O.F.Cl, ETC. Now the gases O and H recombined and formed steam, and the steam ~~[illegible]~~ condensed into water and fell back on the mountains as rain.

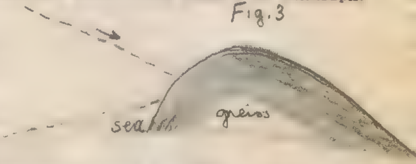
But ~~Now~~, as known, H is a very small element, and therefore combines atomically only with a few elements, and therefore there was created, in the division of matter, less H than O, and therefore there were less hydrates than oxides, and less of it was developed by the heat of the mountains. Now when ~~[illegible]~~ the H became all exhausted a part of the O remained, and became the athmosphere of the earth.

The decomposition of the hydrates, oxides, etc. lasted a long period, duri ring which constant rains fell on the mountains and swelled the seas (which were shallow before the last mountain chains were deposited) many times deeper. The decomposition, as stated, lasted a long time during which the moun tains were all live volcanoes.

Now the planetoids of the last fall as expl'd developed great amounts of heat; while these of the preceding fall were probably a third or fouth their size and fell to the earth from much smaller hights, therefore developed a much less intense heat, that could only decompose the easy decomposable hydrates, and oxides; they developed therefore but little water and therfore only shallow seas and small mountains. While before that stage the planetoids were ~~very~~ still smaller and fell from very small hights and developed but insignificant amounts of heat. Now as the smaller and younger the earth was, the smaller from which it grew the planetoi were

and from the smaller hights did they fall to it, therefore no heat almost at all was developed at the central and middle parts of the earth, only in its outer shell of about fifty to a hundred miles deep or so. As a result of that, the bigger a planet is the greater the haet of its outer layer and deeper that layer is, and the greater its athmosphere of gases, while the smaller it is the smaller the two are. This is why the haet and athmosphere of jupiter and Saturn are so great, and planets like Mars have such small athmospheres and are so cold, and moons have almost no athmospheres at all and no heat

Fig. 3



As stated, in the last fall the planetoids fell much inclined to the earth: as they were attracted to it from great distances (much before they reached perigee) and therefore when they landed their matter became very much crushed & ground, and each formed a mountain of crushed material, whose form was as in the fig. above. Now the earth during its middle stage of development was covered with shallow seas, and therfore the planetoids fell into the seas, and the mountains they formed drew up the saes opon themselves to quite an hight. Now as explained, the mountains of the last fall developed immense amounts of steam which recondensed and fell back on them in very haevy ceaseless rains, and as these mountains were crushed it is to be expected that these rains immediately commenced to wash down into the sea their crushed material in very great amounts and quick and spread it out in beds. In fact the amount washed down, in the begining, was so great that the seas near the mountains were soon filled up to sea level. Now from these great wash downs the mountains were gradually washed down lower and the seas commenced gradually to recede from them, and the filled parts became high dry land. And this continued for a long period. Now as the lower the mountains were washed down, the more the seas receded, in this way great areas of dry gently sloping land was formed around the mountains, and land life soon sprang up, which it could not do before, as there was no land only seas. And this explains why sea life originate much before land life.

Now as deposition in the begining was so very great, the beds deposited on the mountains themselves (their submerged parts) were the thickest of al. And as the sides of the mountains were very steep the beds commenced to slide, fold and tumble down to the foot of the mountains, and new ones were formed, which again slid down, and made the mountains less slopy, after which the next beds stayed on. The washing down of the mountains lasted a long time, and when the mountains commenced to become cooler the rains decreased and with it the crushed material, the beds became shorter and thinner, and it took a longer time to form a thin short bed, than in the begining a huge long one.

In the washing down of the crushed material, the fine stuff was washed away first, leaving the coarse on the mountain side. And when the amount of it became great and loose (as the fine matter from between was washed away) it tumbled down to the foot of the mountain forming a boulder bed. After the montain sides became clear again, the fine material commenced again to be washed away and the coarse left behind, and when it accumulated again, it again tumbled down into a bed and so forth, the process being repeated untill the mountains were considerably washed down and less steep, after which the coarse matter could not tumble down and layed untill the boulders were washed round, and then were rolled, one after another into the sea by the streams.

Life on the earth.

It is seen that in the condensation of a solar sphere in the way described, the Sun and planets grew simultaineously, even at the time of the last downfall of the planetoids the Sun was yet young and still growing* and becoming hoter. It is also seen, that at the time when life sprang up on the earth, the heat at the equator was twice as strong as at the poles (it was from the Sun and the mountains) and was to great for life, and life therefore sprang up fist at the poles and arctics, where the haet was suppied by the mountains only, and was moderate, and when the dry land already extended far from the mountains, and the mountains themselves were cooler.

In time (much later) the heat of the mountains gradually decreased while that of the sun somewhat increased. And the heat of the Sun became favorable for life and growth. And life and growth moved from the poles and arctics to the middle zone of the earth and the tropics. And this is why in the begining life and growth throve best at the poles, and at the end of the Suns growth at the tropics and middle zone.
(it throve better

* From the fall of the uncondensed matter to it which was very great at that time

Howthe $urplus Matter of the Solar Sphere condensed into belts and planets

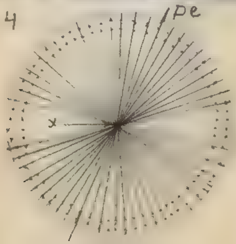
The condensation of the Surplus Matter of the Solar Sphere into belts.

In a solar sphere in the beginning the molecules or particles of matter were distributed equally distant from one another,and were moving in orbits that crossed one another at a common Axis(like the polar axis of the earth)*

Therefore,if we divide the sphere of molecules of the Sorplus Matter into diametrical planes,as the diameters in fig. 4 (in which only a few of the planes are shown),we will see that they cross each other at the axis (x) and In such planes the particles are in concentric circles close together (as the 2 circles in same fig.) and therefore so are the orbits of the particles close together to circles. Now as in each plane the particles were distributed alike,therefore,particles of like positions in the planes crossed the axis(x)at the same time,and at the same point of it, and therefore,met and collided together there

And in this way the particles of all the planes were condensed into one plane(and that plane is the plane of the Ecliptic pe) ~~and the orbits of the little bodies or planetoids were quite elliptical(more elliptical than the orbits of the molecules that formed them,as in fig.~~ Now after this stage the matter of the resultant plane began condensing into separate belts in the following manner: ~~the planetoids of the Resultant plane(and of every diametrical plane)and the orbits of the planetoids were in concentric circles,as in fig. Now if we divide a diametrical plane into radiuses it is seen that the orbits of each radius of particles~~ are concentric,and these ~~the axes coincide~~ as the radiuses of orbits r,r,r,r and t,t,t,t,of fig.

Fg. 4



Thus, In the plane of the ecliptic, at the time of the stage of the condensation of the excess matter into belts, the particles were very close, and the orbits of the particles were quite elliptical, each orbit therefore was crossed by immense numbers of other orbits. Now if we divide the plane into radiuses, than it is seen that the orbits of the radiuses that are at right angle to one another were Aphelo-Perihelial to one another. That is, the aphelions of the orbits of one of the two radiuses cross the perhelions of ~~one~~ of the orbits of the other radius. (the one at right angle to it), Thus in Fig.4 are the orbits of two at right angle radiuses. It shows that the aphelion of orbit 1 meets with the perihelion of orbit 2, and the aphelion of the orbit 2 crosses the perihelion of orbit 3 of the radius at right angle to it, and orbit 3 crosses the perihelion of the orbit 4 of that radius.etc.

Now, as already stated, each orbit of a solar sphere excess matter plane was crossed by immense amounts of other orbits; but at none of these crossings did the particles arrive at the same time to the point of the c crossing, and therefore, at none of these crossings did the particles meet and collide except at the aphelo-perihelial ones; and all meetings and collisions of the particles (except a small amount) took place at these crossings only

Now if we take the orbits of two at right angled radiuses it is seen that between each two aphelo-perihelial orbits there is a great group of orbits, millions in number; and that the orbits of each such two successive groups meet aphelo-perihelially. Thus in Fig.4 the groups of circlet 1 and 2 are two such groups of orbits, and the aphelions of the orbit of group 1 meet with the perihelions of group 2, and the aphelions of group 2 meet with the perihelions of group 3, and the aphelion of group 3 meet with the perihelions of group 4 Etc. Thus it is seen that the orbits of each two successive aphelo-perihelial groups meet and these particles collide. Now from such these collisions their orbits became almost round and less than a half in size and (thus) became condensed into a belt and this belt is separated from the rest of the aphelo-perihelial groups of the two radiuses. In the same manner condensed into that same belt the corresponding groups of the same parts of the radiuses of aphelo-perihelial orbits of the rest of the at right angle radiuses of the plane.

We will repeat again; the orbits of two at right angle radiuses of a solar sphere excess matter plane are in groups which are aphelo-perihelial to one another

Thus the group of orbits 1 are aphelo-perihelially with the group 2,and the orbits of group 2 are aphelo-perihelially with these of group 3,and these of group 3 are aphelo-perihelial with these of group 4 etc. And each of the groups collides with the orbits of the one next to it.But it is seen that when group 1,for instance, meet and collides with these of group 2,the orbits of the resultant particles condense into a belt and become so much smaller that group 3 orbits do not intersect with them any more and cannot meet with them,and must meet instead with the orbits of the group next to it (the group 4). Thus,for instance, when the particles of group one orbits collided with the particles of group 2 orbits (and) their resultant particles condensed to within orbits 3.3' (as belt A of fig.4),group 3 orbits,therefore, could meet with none of the particles of group 2,that is could meet with none of the particles of belt A,only with the particles of group 4orbits.Therefore,the (corresponding) particles of these two groups commenced to collide with one another,and from the contraction of the orbits of their resultant particles to less than a half size,they condensed into between the orbits 5,.5' and 4,4' into the belt B,which is (thus) separate from belt A by a great distance. F.O. of figs 4 & 5 (the smallest orbit (of belt B, but only one shown)

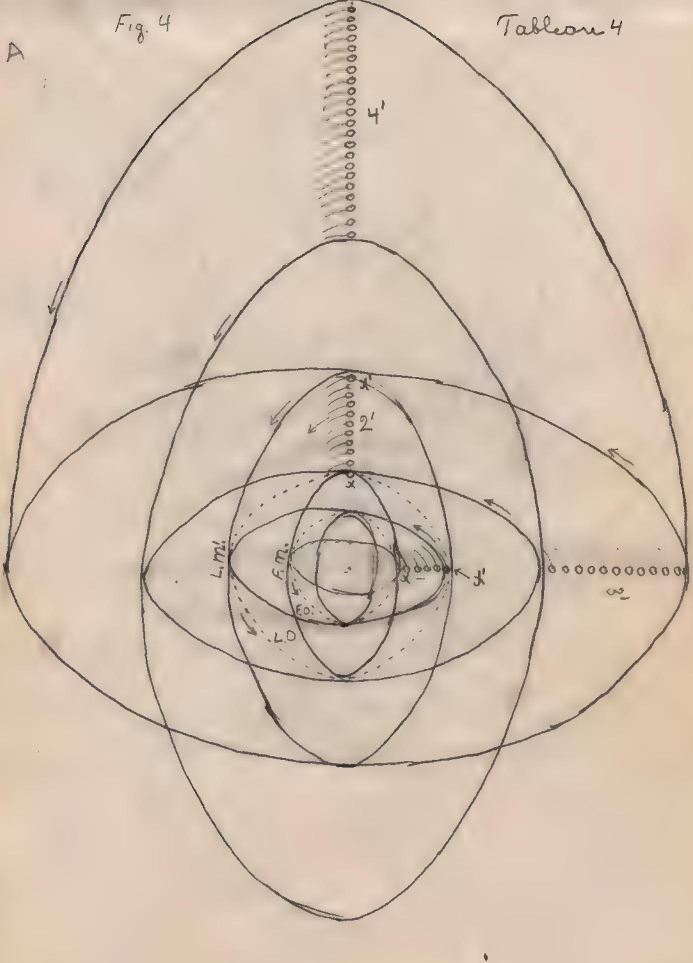
Now in aphelo-perihelial groups the orbits of each successive group are twice as big as these of the preceding group.Thus the orbits of group 2 are twice as big as these of group 1; and these of group 3 are twice as these of group 2,and these of group 4 twice as big as these of group 3.etc.

Again, when particles of aphelo-perihelial orbits collide,the orbits of the resultant particles contract into (a trifle) less than a half in size and are nearly circular and condense into a belt.Therefore, when groups 1 and 2 collided (and) their resultant particles condensed into a belt (belt A) ,and than when groups 3and 4 collided and condensed into belt B,belt B was twice as big as belt A; and therefore,the two belts were separate from one another by a certain distance, see fig. 6,And than when groups 5and 6 met and collided,and their resultant particles condensed into belt 3,the distance of belt 3 from belt 2 was twice as big as that of belt B from belt A. And similarly,when groups 7 and 8 collided and formed belt 4,that belt was twice

96 A

Fig. 4

Tableau 4



96B Fig 5 Tableau 9

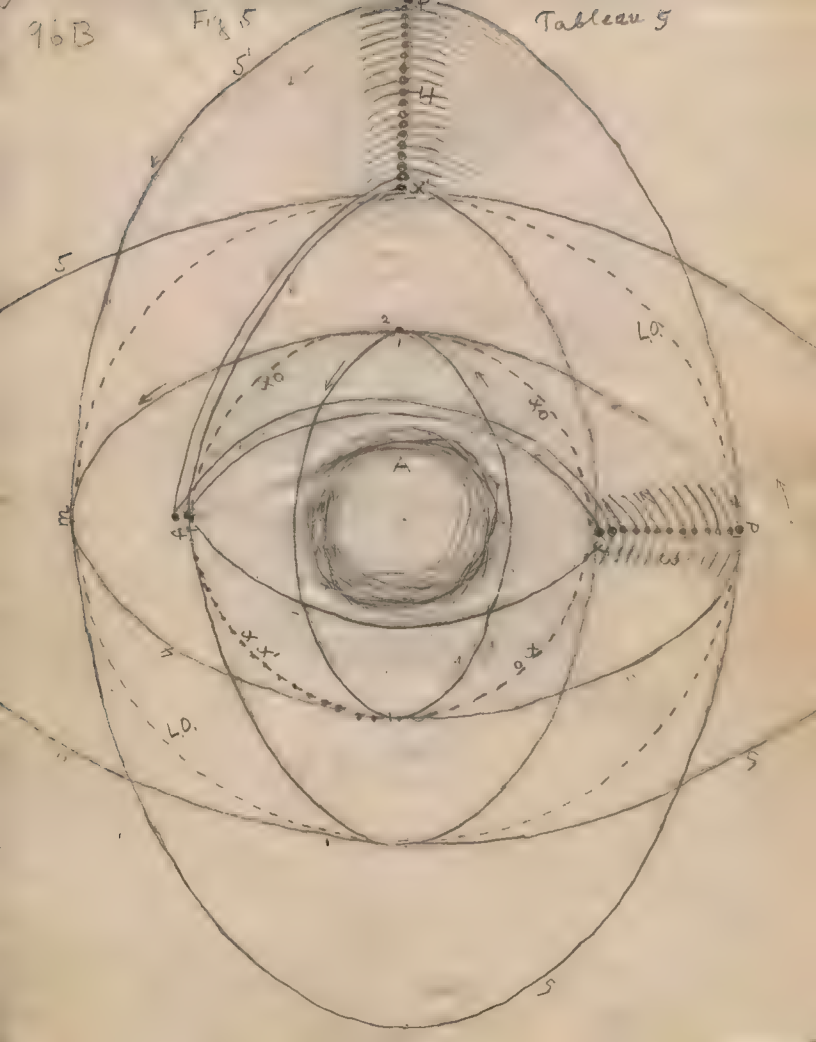
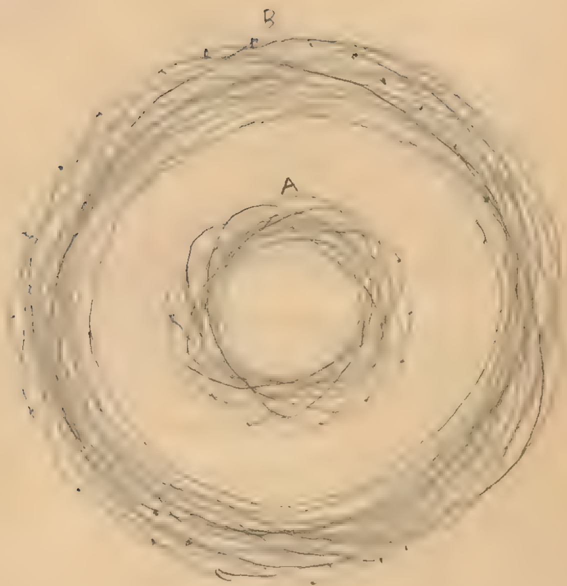
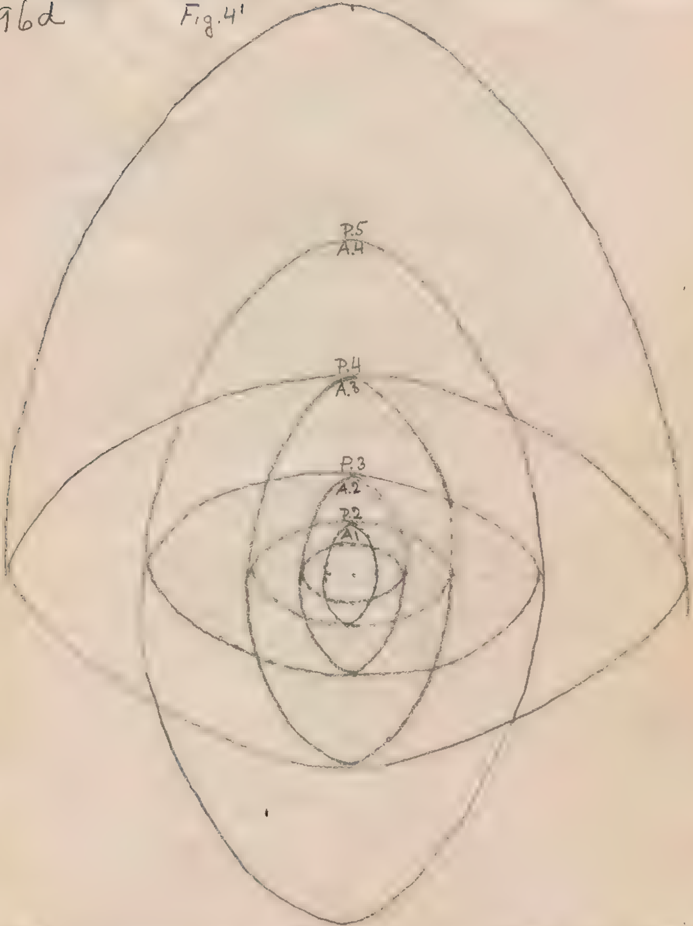


Fig. 6



96d

Fig. 4'



In this diagram for convenience sake orbits 5 are given in halfs

Meetings & collisions ~~of groups 3 & 4~~
~~particles~~ of the particles or planetoids ~~of~~ PHP' Aphelion perihelion ~~the~~ of groups ~~[illegible]~~ of two unit
ang'lar radiuses at its ~~the~~ [illegible] ation of belts (two) of new orbits
~~The orbits of the intermediary particles not being omitted~~

The short lines on both [illegible] of [illegible] particles (?)
show [illegible] orbits

---

in fig 5 M shows where the first particles X & X of the aphelion-perihelion groups 3 & 4 met & the resultant particle formed the orbit F.O, the first orbit of belt 2, while at M' the last particles X' & X' of the two groups met & formed the last orbit (L.O.) of the belt thus showing the thickness & magnitude of belt 2 All the other meetings & orbits being ommitted as unnecessary

---

In fig. 4 M ~~shows~~ is where the first particles X & X of ~~groups 1 & 2~~ the aphelion perihelion groups 1 & 2 (of the two unit ang'lar radiuses) met & formed orbit F.O. (the first orbit of belt 1, while M' shows where the last particles X' X' of the two groups met & formed the last orbit L.O. of the belt thus showing the relative magnitude & thickness of belt 1. All the other orbits being unnecessary) Fig. 6 shows belts 1 & 2

as much distant from belt 3 as belt 3 was from belt 2 etc. Thus did the Aphelo-Perihelial groups of orbits of two at-right-angle radiuses divide themselves into belts, and the distances of the belts and their magnitudes were geometrically progressive as 1,2,4,8,16, etc.

Now as a plane consists of radiuses of particles and all the orbits of the plane met aphelo-perihelialy, therefore the matter of a plane (its particles) condensed into belts whose distances from one another, magnitudes and thicknesseswere geometrically progressive.

The resultant plane of the excess matter of our Solar Sphere condensed into about 50 belts, and these into 50 planets. The distance between planets 1 and 2 was about 2 inches (the size of the planet was about a half inch) The distance between planets 2 and 3 was about 4 inches, between 3 and 4 about 8 inches, between 4 and 5 it was 16 inches etc. In this way the distance of planet 35 was about a million miles from the center, of the plane, planet 36 was 2 million miles, planet 37 was 4 million miles from the centr planet 38 was 8 million miles etc. Now as the Sun is about a million miles in diameter, it immersed the first 35 planets and attracted the planets 36, 37, and 38 which were to near to it leaving about eleven planets extant. Of these 11, planet 39 moves between Mercury and the SUn, and being small is invisible.

Uncondensed or unplanetized Matter.

As explained, each planet was formed out of ~~two~~ Aphelo-Perihelial groups of particles of the Solar Sphere Excess-Matter Plane. Of the two groups (of each pair) one was smaller than the other one (see the successive groups in Tableaus 3 and 4) Accordingly, in the meetings of the particles of the two groups a third of the particles of the bigger group remained unmet and uncondensed; and therefore, great amounts of uncondensed, stray mater was and still is, moving in the spaces between the planets. That matter is condensing slow, ~~the~~ greatest part of it has been so far condensed into meteors ; and only a t part of it is still moving in—

elliptical orbits between the planets.As the particles of that matter condense,their orbits become smaller,and than,when they pass near the planets they are attracted and fall to them.and when some of that matter condense into planetoids,and these are attracted by the big planets or Sun they produce Sun Spots.

Condensation of a belt into a planet.

Each belt condensed into a planet.The condensation of each belt begins at the inner side of the belt and progresses outwards to its periphery.Now as the nearer an orbit was to the Sun the quicker was its orbital motion, and the oftener its revolutions around the sun.Therefore the oftener did such orbits cross one another,and the sooner did the planetoids of these orbits meet and collide.Hence: each planet started at the inside of the belt,and than grew outwards and its orbit with it from the planetoids of the belt which it attracted.The process of the growth being as follows: each time the planet attracted a planetoid its body,attraction powers and its orbit became bigger.The increase of its orbit brought it near to the next planetoids of the belt,and which it again attracted and its orbit,body and attraction power again increased and brought it again near to the next planetoids etc. etc.In this way it attracted all the planetoids of the belt and reached its present magnitude,and so did its orbit.

Moons and their origin.

Planets attracted the planetoids from somewhat varying distances: from the distance X to X+Y (Y being a small part of X) Now a planetoid that was attracted from about X fell direct to the planet,while these it attracted from the distances greater than X (X+Y) did not fall onto the planet but to near to it and became its satelites.In this way a planet in its growth constantly formed satelites around itself.But since as the planet grew its orbit grew with it,it soon approached near to the satelites and commenced to attract them (begining of course with the first satelite in the inner side of the satelite belt).And at the same time it to attract planetoids from greater and greater distances from the belt it grew from. Now of these too the ones

that were atracted from the distances between X and Y became satelites and thus adding new satelites to the outside of the satelite belt. In this way the planet as it grew attracted to itself one after another the satelites from the inner side of the satelite belt, and added new satelites to the outside of it. This continued untill the planet itself having attracted all the planetoids of its own belt ceased growing and the formation of satelites ceased

Now the belt of satelites that a planet surrounds itself in the later part of its growth, condensed, after the planet ceases to grow, into a moon or moons, according to how thick it ~~is~~ was. Thus small planets form smal belts of satelites and these form small moons. While big planets such as Jup. & Satu. formed big satelite belts (~~such as the planets Jupiter and Saturn~~) and these formed a series of moons each.

Now the condensation of the satelite belts into moons was exactly as that of a belt into a planet, and was as follows

As explained, the biggest amount of matter of the central and outer zones of a solar sphere was transported to the middle zone. Now this transportation was irregular, as proved by the magnitudes of the planets and the existence of the belt of planetoids in the central zone. That is, that transportation was much greater from some parts of the central zone than from others, and therefore its deposition in the middle zone also was much greater in some places than in others. And this made the matter of the belts of Jupiter and Saturn also irregularly distributed, the matter of some part of the belts having been much denser and of other parts much rarer. As a result, this in its turn produced the effect that in the belts of satelites the planetoids were also much denser in some parts and rarer in others. Again, in the satelite belts the planetoids originally were much rarer than in the planet belts*. Because, as explained, only a few of the planetoid,

* A planet belt is one from which a planet was developed, and from a Satelite belt a moon was developed.

from the belt of the planet became Satelites, and this made the planetoid in some parts of some Satelite belts to be very rare and in some parts meddium and in still others dense. Again this in its turn produced the effect that in a denser part of a satelite belt more than one moon could start to form while in rarer part only one moon could start to form, and in the much rare parts no moon could form, and even moons that started in more dense parts of a belt, when in its development, reached such a rare part ceased to developed farther. And so this is why in some parts of some belts of Satelites no moons at all were formed, while in the dense parts two moons started in each part, and also why in (some) cases of a series of moons the distances of the moons were not as 1.2 .4.8.etc.

Satelites, as known, were planetoids of the earths belt. Therefore this is why the mountains of the moon are of the same magnitude as these of the earth.

The orbits of Satelites, as known, were formed by the earth and not by the Sun, and therefore were much smaller and less elliptical. And as a moon is a small body it attracted the Satelites (duribg its formation) from s small hights and almost perpendicularly, And therefore when they landed to it, they did not develope much haet, nor axial motion, and no great decomposition of hydrates, oxides etc. And the moon therefore did not form much water, nor an athmosphere, nor violent volcanoese etc.

~~As moons, as just explained, fell perpendicular~~

As, as just explained, to the moons the planetoids fell perpendicularly they did not form mountains of the shape like these of the earth, but of the shape of a basin, ... Sometimes a small part of the core of the landed Satelite did not collapse and remained standing in the center of the basin mountain. as C in mountain M. of the moon (see fig. 9 p. 101)

How a planet and its orbit grew.

As known, when two planetoids as A and B with orbits of different ellipticity, but moving in the same plane, collide, the orbit of the resultant particle or planetoid is a mean of the orbits of th e two planetoids That is it is less elliptical than one and more elliptical than the other.

Fig. 7

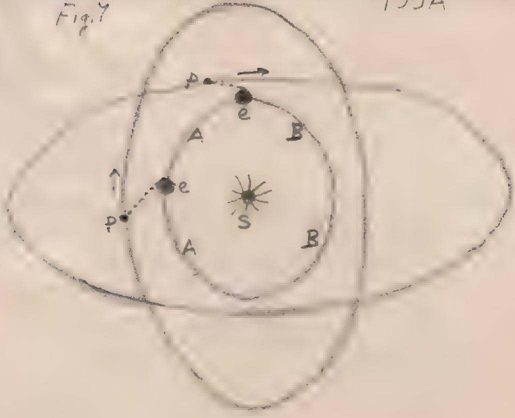
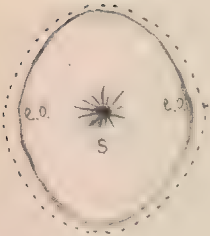


Fig. 8



The fig.7 p.100 shows the earth E.E and its orbit A.A and B.B both during the time of their development,and two of the planetoids of the earths belt ,and their orbits. It shows how when the earth attracted a planetoid,when the earth was between A.A or betweeb B B of its its orbit,the fall of the planetoid was much inclined to it,and when the planetoid landed to the earth,it made the earths orbit bigger and more elliptical. But when a planetoid was attracted and fell to it whe it was between A and B or B and A of its orbit,its or-bit became bigger but less ellipticalNow the amount the earths orbit became bigger and(more)round during its motion between A and B or between Band A quarters of its orbit was greater than the amount it became(more)ellitical in the quarters A.A or B.B. This was because when it was in the quarters A Aor B B it was more or less at perihelion,and its orbital motion speed was the greatest,and when it attracted a planetoid and that planetoid landed to it,it changed the course of the earth only a small amount and made the earths orbit only a small amount more elliptical. But when the earth was at the qaarters A B or B A of its orbit,it was at aphelion and its orbital motion momentum was nil or very small,therefore when the planetoid landed it changed the orbital motion course of the earth much more than in the first case (when its momentum was the greatest and unyielding); and made it much more round than the first planetoid at perihelion made it elliptical.And this is h w the earths grew a little bigger and more round after each circle of planetoids fell to it,as shown in fig.8 by the circle of dashes around its orbit E O. ~~The fig. sows how and how much the earths orbit changed and grew from the fall of a cicle of planetoids to it~~

Fig 9

Spiral and Irregular Nebulae ; [illegible].

We have explained in section 4that Universal Matter divided itself into solar spheres of elements, and that the solar spheres of elements at the center of it were the heaviest; and the elements of the solar spheres beccame smaller gradually, the nearer the solar spheres were to the peruphery. And that the matter of each solar sphere after that, condensed into a star. And that therefore, begining from the center of the Universe (whre the stars were of the heaviest elements), the elements of the stars gradually became lighter and smaller, the nearer and nearer to the periphery. And these at the periphery were the lightest of all, and of magnitudes next to these of imponderable elements. Also on the contrary, begining from the center of universal matter the magnitudes of the solar spheres stars gradually increased in volume to the periphery.

Spiral Nebulae

Now in the begining, soon after the condensation of the solar spheres into stars, the stars were much closer to one another, and often collided with one another. Now from these collisions of the stars of the periphery the Spiral Neblae were formed. Each spiral nebulae was formed from the collision of two peripheral stars which met at acute angles, and therefore, more or less, half to half, as in the accomp. fig. of p. 3, and whose axial motions were t therfore in the same direction, as indicated by the arrows. Therefore spiral nebulae originated at the border of the Galaxy, and are the farthest , and their elements the lightest of all stars.

The Irregular Nebulae.

The irregular nebulae are nothing but cery huge lumps of uncondensed matter of the solar spheres of some of the very remote and very big stars of the galaxy. Because, in the condensation of each solar sphere into a star ,some of the stars collided with one another and formed a new orbit, after they condensed to themselves only about a half of the matter of their solar spheres, And the new orbit they formed was much smaller, and far removed from that of the solar sphere, and its matter; thus leaving the outer half of the matter of the solar sphere uncondensed. (something like in the con-

densation of the excess matter if our solar sphere into the planets ,in which a third of the matter of each belt was left uncondensed). Now these outer halfs of the matter of the solar sphered were later on broken up into lumps of various forms,dimensions and magnitudes.Because ,as known, the very,very far stars are thousands of times as big as the sun,and the solar spheres(from which they condensed)were millions of times as big as the stars, Hence the hugeness of their uncondensed massesof matter..These lumps of uncondensed matter are nearer to the center of the universe than the spiral nebulae. But being of the outer halfs of solar spheres their elements are theregore smaller than the average magnitude of the elements of the spiral nebulae.

Fig 29

The great speed of Nebulae and of some Stars.

All Nebulae have great speeds while of the stars only a few have such great speeds.This is because, in the begining,after the stars were only formed, and acquired orbital motions in opposite directions to one another,they were quite close to each other ~~and~~ each collided ~~[illegible]~~ a few times,but a few escaped colliding.And as,when two stars collide they destroy one anothers orbital motionand orbits,and form a new orbit,the new orbit is much smaller and so is the new orbital motion speed, And as each star collided a few times,thei speed became quite small.But not so with the stars that escaped all collisionsand with the nebulae,Neither lost amy of their original speeds from collisions from the very begining,and besides that the spiral were the farthest of all stars,and therefore both developed speeds. And this is why the few escaped stars(the run away stars)have such great speeds and small masses *

Collisions at acute angles are not violent, and the stars that meet at such angles col[illegible] are mostly half to half, as in the fig. The halfs that collide form a nucleus, the other halfs as a result of their axial motion impetuses break and the pieces of each form into a spiral around the nucleus

Comets.

Comets were formed of the matter of the peripheral zone of our solar

~~[illegible]~~ .Now when,after the division of matter was over,and the molecules acquired orbital motion ,the orbits of the molacules of the periphery were very elliptical,immensely so.But as they condensed they formed the comets so their orbits lost much of their ellipticities.still the orbits of the comets are very elliptical,and their elements are the smallast and lightest of all the elements of the solar sphere.It is probable that the comets in their orbital motion met and collided with some molecules of some heavier elements and absorbed them,thus containing some somewhat heavier matter.

Source of Luminosity of Nebulae , ~~Stars and~~ [illegible] of Comets Tails.

As explained,the chemical forces of atoms are never absolutely neutralized by combinations,and some infinitessimally small part of it of each atom remains always unneutralized. Now these unneutralized parts of the chemical forces of the atoms of the matter of great bodies (begining with the size of the earth)have the power to decompose molecules of Light elements into rays of light. Also that interstellar space,the ether and gases consist of the molecules of the elements of the imponderable classes(mostly the light elements). And that begining with bodies of the size of the earth ,which apparently can only decompose a thin layerof these molecules(as into the Northeren Lights)the greater the bodies,the greater the sphere of light molecules they decompose into rays ,and longer and more intense the rays And this decomposition is the origin and source of the light of Stars,Comets and Nebulae.

The Tails of Comets.

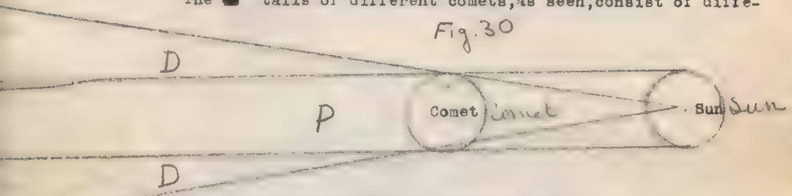
Now according to this law the light decomposition and ray formation power of a body is as its mass.Therefore ,when a comet is anywhere around the Sun,than the comet in conjunction with the Sun decompose more of the light molecules of the pencil P fig.5 which is the only pencil upon which the two act together in the same direction, And thus form what is now assumed to be the tail of the comet,But which in reality is only a pencil of denser and more intense light.

That such is the case is proven by the following facts: 1)That the

closer the comet and the sun are ,the brighter the tail(pencil) is 2) Also the bigger the comet is the brighter is the pencil or tail 3) And that small comets have no tails. 4)That tails are in a straight line away from both the comet and the sun.5) That the pencils of light (tails) may change in width on one or both their sides from one to many degrees,the change being the result of the comets motion around the sun,in which its side towards the sun changes,and the new side of it may be wider or narrower than the one before it.6) That changes of comets tails are as quick as light(less the speed of the comets motion around the Sun)

The tails of different comets,as seen,consist of diffe-

Fig.30



rently distributed subpencils.These are due to parts of the comets heads being of different composition.(distances)

* * *

The Suns Axial Motion.of Stars

Stars (Suns)could developed no great axial motion: as axial motion in bodies was caused by the fall to one side of it of a great amount of matter ,or of the matter from which the star body was formed; and to the Sun 99 and a fraction of one percent of its matter fell ~~to it~~ equally to all its sides This matter therefore produced no axial motion in it. The suns axial motion is due solely to a part of the "Excess Matter" of the solar sphere which passed the sun close enough and was attracted by it. This is why the suns axial motion is small:as the whole excess matter of of a the solar sphere amounted only to one percent of that of the suns mass.

Binary Stars.

As explained,the stars after their formation were to close to one another,and therefore met with one another many times before they became thinned out,while a great number of them passed close to one another and were attracted to one another and formed binary stars. That such was the case is almost proven by the facts:that the component stars of the binaries are seldom of equal mass,and so are the binaries themselves. And that the masses of the heavier binderies are only a few times the mass of the lighter one.And that the number of the binaries is quite great. And that the masses of the stars that never met(the run away stars)all are of about equal mass.

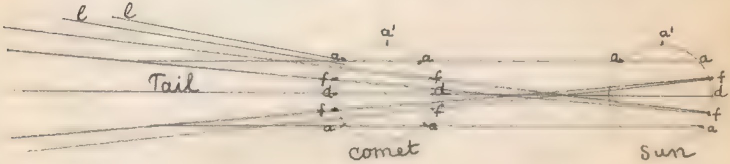
 Insert at the asterisk of p. 105 A

Zodiacal Light and the Gegenshein.

Again, according to the same law the planets should also form tails. And this is really the case; the zodiacal light is the earths tail. Only, as the earths is much smaller than the sun, the zodiacal light is wedge-like and can extend only as far as its shadow, and is therefore short. But it is different in the case of the comets. These, although their masses are about the same as that of the earth, their bulks are about as big as th that of the sun or bigger. And therefore their tails instead of becoming narrower the farther away from the sun, the tail is, become wider and extend very far imto space. -- The gegenshine is probably of the nature as the subpencils of the comets tails(see comets).

Thickness or Width of the Zodiacal Light and of comets Tails.

Rays of light are formed only in these directions common to both bodies (the sun comet or the sun and earth) that are between the diameter of each and 10° 15°.degrees from it on both sides of it, between the lines d and fof fig. 33 , but which are not given. This is because only these lines of the two bodies have great enough power to produce visible and long rays, while lines farther away from their diameters(the lines between f and a produce shorter and shorter rays, like l,l, and these between a,a' form no visible rays at all. And this is why the thickness of the zodiacal light is anywhere between 20°-30° degrees at its base; the same being the case with te the comet tails at their bases. That is the tail close to the head is either narrower than the head or the rays on both sides of it are short, as l,l



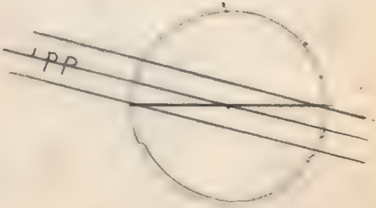
As known, according to the manner of condensation of the excess mat ter of uor solar sphere into the planets,only a half of it could (and was) condensed into the planets,and a half could not (and was not),and remained to be condensed gradually later (at the present time)into small bodies ((planetoids of all sizes)but not planets.Because by the time they attain the size of planetoids they become as near to the sun as about a half of two thirds that of jupiter,and are attracted to it.That is,planetoids of t that distance when they collide and are forming an new orbit are attrac-ted to the sun.

The particles and molecules of which the planets were formed were originally hundreds of times farther away in the solar sphere but have gradually condensed centerwards through meetings and collisions:as from every collision of particles their orbits become smaller and nearer to the center of the solar sphere.

The belt of orbits of the small planetoids and little bodies from th uncondensed matter of between jupiter and the planetoid Ceres are somewhat inclined to the ecliptic,and therefore to the diameter of the sun ,as I.P. P. in fig. And therefore the planetoids and little bodies of that belt when they colide fall to the sun in the direction of I.P.P. and on both si-des of the equator; and to a width laterally of 35 degrees. That width of the sun spot belt is the result and depends on (1)the width of the plane-toid belt I.P.P.(from which they fall),and 2)the distance which they fall to the sun from it .

In the belt of planetoids and little bodies the orbits cross one another at a common axis.And a result the collisions in the middle plane of the belt are the most numerous,decreasin gradually in the planes on both sides of it.Thus in fig. I.P.P. is the middle plane of the belt ,and in that plane (cont. on page 2)

the greatest number of planetoids are falling,their nuaber decreasing rapidly in the planes on both sides of it.And that is why the greatest number of sun spots is in middle plane of the sun spot belt,and the least on its sides.



When planetoids land on the sun,in stricking its surface they either breack into a number of pieces or halfs or are crushed and spread out each into a flat mountain scores of miles in diameter;while when they break into pieces only they are nore or less shattered.Now after they land the heat of the sun immediately commences to attack and penetrat the sides of each piece and melt,and than decompose its compounds into their elements and gases . In this process,as a result of the strong heating the molten and half molten matter of each piece swels and expands both from the heat and the ce decompsed gases in it very mucg and pours out and spreads on the surface (cont. on page 3)

---

* All the orbits of a belt of particles cross one another at a common axis ;and all collisions take place at that axis.

face of the sun from all around each piece with great force,while the gases rise in clouds .And while all this is going on around the sides of each sun spot the center of each remained comparatively cool,and the cooler air from above rushes down to its center .

Now as explained,the pieces into which the planetoids broke in their landing on the sun,were shattered. Therefore the molten matter of the sides of each sun spot consisted of partly molten pieces forced out in the form of streamers.

As a result of the forceful expansion and spreading of miles thick half molten matter from the ~~its~~ sides of sun spots,when two sun spots are near one another they are forced apart by the spreading molten masses whih are pushing each away from the other.And so are the streamers of the two pushed and bent in opposite directions from one another.

This repelling of each sun spot from the others makes an area of sun spots to divide itself into 4 equal parts which recede from one another in opposite directions.It makes the belt of sun spots to divide itself longitudinally into two equal halfs,as the sun spot belt is all around the sun it cannot therefore be divided crosswise too.) one half of the sun spot belt moving towards the equator and the other one away from it.It makes a single line of sun spots to divide itself into two equal halfs receding from one another. Thus fig. is a line of sun spots:the repelling,spreading mass pushes away first the two end spots of the line (which after that continue to recede) Than it pushes away the two next o es;and than pushes away from one another the two last ones.

The Increade in the amount of Light,Electric and Magnetic rays in the sun spot Area

Since the power of an heavenly body to decompose the molecules of the imponderable elements and form them into rays is increased by the increase of its mass or of any area of it.Therefor the belt of sun spots produces the Corona (which is therefore mostly above the belt and not over the poles or polar region.ANd the outpoured matter of each sun spot is lighter than the rest of the suns surface,and forms magnetic and elec-

This art. to be inserted after the art. "Great speed of nebulae & some stars" p. 108

Insert after asterek of p

The small groups of farthest distant Stars

~~Corona and Prominences of the Sun.~~

As a result of the several meetings and collisions of each atar,and of the resultant of each two collided stars forming a new orbit which was smaller,the starry heavens (the galaxy) contracted to a half or less its original size or diameter,excepting the orbits of a few small groups or classes as the run away stars,Secchis divisions 1and 3 and the Wolf-Rayet stars ,and which all more or less escaped collisions.Of these groups the run away stars never collided at all,and although the zone they come from is nearer to the center of the galaxy than the zones the other groups come from.Yet because they never collided at all,they became the farthest from it and on the outside of the galaxy,after the galaxy contracted.The group 1 stars come from the outermost zone(the peripheral zone)of the galaxy, group2 2 come from the zone next to it centerwards:Betelgeuze,Antares etc. belong to that group.The rest of the stars of the zone formed the clusters and spiral nebulae.The Wolf-Rayet group are of the zone next nearer to the centerof the galaxy than these of group 2.

Now the brief of this is that the run away stars,which as stated never collided and their orbits never contracted became therefore the farthest from the galaxy and on the outside of it. These of group 1 are somewhat n nearer the galaxy than the run away .These of group 2 still nearer,and the Wolf-Rayet on the border of the galaxy. And this is why the stars of group 1 consist of only very few elements (as,as known, the farther a star is from the center of the galaxy the fewer and smaller its elements)and small est ones at that,the elements H and He ,and they look therefore blue.The sters of group 2 consist of more elements and are red in color ;and these of the Wolf-Rayet contain a still greater number of elements.And of the run away stars,so far, nothing about the number of their elements is known.Their spectrums perhaps resemble more that of the sun than the rest of the groups.

Sun Spots and The Corona and Prominences of the Sun.

This art to be inserted after the art. "Sources of luminosity of nebulae, stars & Comets tails"

Sun spots are nothing else but planetoids that fall to the suna and which are formed of the remaining half of uncondensed excess-matter (that was not condensed in the formation of the planets and sun)of our solar sphere; and which are attracted and fall to the sun either after theyr reach,in their growth, a certain magnitude,or as a result of collisions

B

become nearer to the sun and their speed smaller, and are attracted by it.

Now when planetoids land on the sun their compounds (oxides, fluorides chlorides etc. immediately commence to be decomposed by the suns heat into their elements, thus forming huge volumes of gases which rise, while the expanded half liquid masses of the heavy matter gush out to the surface of t the sun from the sides of the sun spot all around ~~the sun spot~~ it

Now this small increase of the area of sun spots by the matter of th the landed planetoids, and which is only a few miles in thickness (as planetoids are only about 50-100 miles in diameter) increases the ray forming p power of the sun (at these areas) sufficient to form rays of light of about 200000-300000 miles long; and these thus produced the phenomena of the corona' which therefore is only about 200000-300000 miles high), and also that of the prominences by illuminating up to an hight of 2-30000 miles the masses or clouds of hydrogen and hellium above and around the suns spot areas, and the clouds of the risen decomposed gases from the planetoids, making them thus look like prominences.

tric rays above the sun spots area.

And that is whyt the Rice-Grain area which are nothing but short mountain chains give out so much more light than the valeys between them and the rest of yhe surface of the sun.because their mountains are hunderts or more miles high.

Light,Magnetic and Electric Rays or

currents above the sun spots.

Since the masses of heavenly bodies have the power to decompose the molecules of the imponderable classes of elements and form them into rays ,Therefore any increase in the mass of the matter of an heavenly body increases that power in it.And therefore above the sun spots,besides light, great amounts of magnetic and electric rays are also formed . And that is why great heavenly bodies sent forth great amounts of magnetic and electric rays or streams,and sun spots only in a small scale.

It is to be expected,that in a pad of orbits of a belt of planetoids the collisions of the planetoids occur in a certain order.And that is why the fall of the planetoids to the sun take plase in that order;both being the result of a certain arrangement of the orbits of the planetoids in the belt.

As known,in the begining of the condensation of the solar sphere matter (right after the molecules acquired orbital motion) the orbits of the molecules,and of the collided particles of the solar sphere,their shape, centers and positions were determined by the attraction force of the matter of the solar sphere.Thus the center of each orbit was in the middle of it,and it divided,and it dicided the orbit into equal symmetrical halfs . And the aphelion and perihelion of the orbits were at right angle to one anotheretc.But after the sun sraeted and was developing the centers of all new orbits of collided particles were determined by the sun; and orbits began to be excentric And the bigger the sun grew the more excentric the orbits became .That is,the nearer to the sun their perihelions became and farther from it their aphelions.And their perihelions and aphelions became at th ends of the same axisNow the result of this is that whilein the begining all sizes of orbits big and verysmall ones could be formed by par-

ticles without being attracted to the center of the solar sphere.
solar sphere).And on the contrary, at the present age,and the present magnitude of the sun,only particles and planetoids that fall to the sun from certain great distances (distances as that of jupiter)develope in their f fall from aphelion to perihelion enough momentum to go around the sun (without falling to it)and back to aphelion,and thus form an orbit.And that is why at the present time all collided particles of the yet uncondensed excess matter that are falling from distances as that of jupiter or greater do not fall to the sun,but acquire orbits.But all these that fall from distances less than that,(from distance nearer than jupiterare attracted by the sun and fall on to it.And hence the great number of planetoids that fall to the sun (at the present time)or the great number of sun spots.

The origin of the Canals on Mars,and the Dark and

Bright lines on it

To mars,on account of its small size,the planetoids from which it was formed (at the time of the formation of the planets) fell somewhat less inclined than to the rest of the planets;and the planetoids were smaller(as the bigger the planet was the bigger the planetoids that fell to it at the end of it copletion)And therefore the planetoids fell to mars in chains paralell to one another and not tooclose nor toofar apart;and therefore formed long narrow valeys between the successive chains ,almost of the ful length of the whole planet.

Moreover,on account of its smallness mars develo ed almost no water ,and therefore no erosion took place on it.And as a result the mountains and valeys did not change in any way:hence the canals of great length of arc on mars and their regularity.Now the surface of mars,the same as that of the moon,consist of two parts,one of low and one of high altitude ;the hight of the two being a few miles different.Because at the very end planetoids did not fall to the whole surface of each,only in the case of mars to about two thirds of it,and in the case of the moon to about a half of it only: hence an high and low area in each,abd a bright and dark area in each.Because the high altitude area forms a lot more rays of light than th the low

The Rills on the Moon and the Light and Dark Areas

The rills on the moon are outpourings or streams of a kind of easy melting and flowing,light colored lava ,peculiar to a few craters ,and which on account of its easy melting and flowing formed streams that were not very deepNow as explained,a half of the moons surface is of considerably gr greater altitude than the other half,the difference in the two being a few miles,and the high area gradually passes into the low area .Now as a result of the great liquidity of the peculiar lava it penetrated the brocken ,coarse matter of the rims of the craters (as the rim of a crater as explained,consisted of coarse ,lose,brocken matter) and poured out in streams ,which as a result of the great slopiness of the moons high area w ere miles and miles long.And the streams from the highest of these craters were even hundreds of miles long,and stopped only when they reached the low area,as the lava streams of the highest crater Tycho.

Now as a result of the difference in altitude of the two halfs of the moon,their light forming powers differ;and this is why the low area is so much darker than the high one,the same being the case with the two areas of mars.

Section 5.

Life and Growth or Animals and Plants.

The phenomena of life are the results of organic chemistry;and the products of both organic(animals and plants,their organs and substances), and inorganic chemistry, are entirely nothing else but stages of neutralizations of the chemical forces of the elements.Only while inorganic chemistry are the phenomena of the heavier classes of the heavy elements,these of life are the phenomena of the classes of the very small(the smallest) elements.And thereforeLife and Growth are the compounds of these elements, as inorganic compounds are the products of the big elements.It is when the chemical forces of the molecules of the elements are very,very small,and the molecules and their elements too,that they are then affective and sensitive to the actions upun them of(the forces) of all things.That is,when the chemical forces of compounds or molecules and the mo ecules themselves ,are very small,they are affective and sensitive;that is,they are reactive to even very small or slight actions That is, they are aware of or conscious and comunicative to all surrounding actions of things outside themselves. Life therefore is the highest stages of neutralization of the particles of matter-force (the elements);and the more neutralized the molecules of the compounds of organs are,the higher and more developed their stages of life: that is,the greater their sensitiveness,affectedness,reactivity, awareness etc. Accordingly, when matter as molecules are more and more neutralized,they become more and more sensitive,affective,reactive,aware,and conscious to the reactions-force of the of things outside themselves.That is,they posses the property of Life and are Living Matter or Living Particles.And this is Life and its Origin.

The bodies of the amimals and plants in existence are all one chain of successfuly higher and higher stages of neutralization.And therefore posses the properties of life (affectiveness,reactivity etc.) in a successively greater and greater degree. Of the long chain of living beings the human body consists of the highest neutralized substances,and therefore of the highest quality of life,and the stage of neutralization of the human brain being the greatest of all.

Thus this is all there is about life and its origin of to organisms of life.That is,the origin of animals and plants,of their variations,properties etc.

Organisms or Animals and Plants.

An organism is a succession of organs,the substances of each successiv organ being compositionally progressive,the same as the successions of com pounds of inorganic chemistry*. That is,the substance or matter of each successive organ is of an higher stage of composition and neutralization than that of the preceding one.The succession begining with the first compound which is formed out of cells (the protocyto compound) and which is of the lowest stage of neutralization of the succession,and ending with the compound whose molecules are of the highest possible stage of neutralization and development,that is, the brain substance.Now,as explained,already each of the cells of the blastula of an animal is of an higher stage of development and neutralization than the preceding one.And that is why out of each cell of [redacted] a blastula an organ [redacted] of the animal is (through growth) later developed ;the organ bein of the same stage of development as the cell.In the growth of each cell into the organ some of the cells differenciated compositionally into cells of the next higher stage.Such cells always detached themselves and migrated to the cells of that next higher stage and joined them [redacted]

---

* Thus in inorganic chemistry assphericees and assphericers form also successions of compounds;but their successions consist each of only a few compounds about 4 in number as XY, X_2Y, X_3Y, X_4Y (Xbeing the aspherizee [redacted] and Y the asspherizer);while in organic chemistry the successions are longer.In the inorganic successions too aech successive compound is of an higher stage of composition,development and neutralization;and also in a way of greater affectiveness and sensitiveness. Thus for instance,the first compound XY is the least neutralized and is affected only by an high tempe rature,say,of 2000°(that is, it melts at a temp. of 2000°) .That such compoumd usually reacts and forms combinations with but few other compounds.The secomd compoumd (X_2Y)is more neutralized than the first one ,and its chemical force is smaller than that of the first,and is easier affected by temp. (melts at a lower temperature) and reacts and forms compounds with many more other compounds than the first one does.Now the third is more affected than the 2d [redacted] a still smaller temp. (melts at a still lower temp.),is more neutralized than the second,and its chemical force is still smaller and reacts and com bineswith many more other compounds than the second.And lastly,the fourth compound (X_4Y) is more neutralized than the third and is affected by a [redacted] still lower temp.(melts at a still lower temp.) and its chemical force is

still smaller than that of the third one, and reacts and combines with very many other compounds. Thus this shows that the higher the composition and the neutralization stage of a compound, the smaller its chemical force and the more reactive or affective it is. bbbbbbbbbb

The Substances of which Animals and plants are built.

As explained, only molecules whose chemical forces (and the molecules th themselves) are very, very small can form living matter. Therefore, all organic substances are formed of the classes of smallest elements, to wit the classes H.N.C and the classes of imponderable elements. Now the compounds of the elements H.Nand C ([redacted]) and the imponderables of the lower stages of neutralization form tissues, while the nerve and brain substances are f formed by the highest neutralized compounds of these classes. [~~Because the molecules of the elements of the imponderable classes form the highest and neutralized molecules in organic chemistry, N being a lot smaller than even the element H. And as the compounds of the imponderable elements with the classes H.Nand C are much smaller, their compounds are the most neutralized and posses yhe properties of life (affectedness, sensitiveness) in the high highest degree~~] Again, as just stated the compounds of the imponderable elements with the classes H.N and C of the highest neutralized degrees produce the different brain and nerve substances of animals and plants. As for instance, the impon derable elements of the electricity class produce with the classes H.N And C the nerve and brain substances ; the compounds of the class Light with the H .N and C classes produce the substances out of which the organs of Sight are formed. In this way originated the different kinds of nerve and brain substances and brain parts, and these of the organs of vision.

The organs of Hearing.

There are molecules or compounds in organic chemistry which are affected (sensitive to) vibrations even slight ones, something like the molecules of inorganic chemistry which are decomposed by slight jars (see explosives) It is apparently out of these substances that the organs of Hearing are formed.

Variations of Animals and Plants.

The causes of the variations of the animals and plants, or the origin and cause of species, and their division into kingdoms, orders, classes, groups

are as follows:

As already exp-ained,the degree of Life (the degree of affectedness, sensitiveness etc.)see art. pages 1 and 2) of an animal or plant is as the degreeof development and stage of neutralization of the molecules its body is built from.Now the degree of neutralization of the molecules and therefore of the tissues of different animals and plants are produced by no greater a thing than by the differences in the proportions and arrangements of the ingredients of its molecules,as such differences produce substances of different stages of neutralization,the same as in inorganic chemistry where the proportion of the asspherizer to the asspherizee atoms produce molecules of different stages of neutralization. The only difference between the two is that in inorganic chemistry the chains of compounds of asspherizers and aspherizees are short,consisting each of only 4 compounds and the compounds are of definite composition,and the molecules simple, while in inorganic chemistry the molecules are both simple and complex, and comprehensive in composition ,the complex molecules being formed each out of a number of simple ones.The ingredients of the simple molecules also differ in proportions,and enter into the formation of the complex ones in many different proportions and different arrangements (these may be arranged in many different ways).Both the number of the proportions and the number of the ways of their arrangements are ~~vere~~ very great.Thus making the number of the very complex molecules (the complexons) extremely great.

Now if we could take all the possible complexons and arrange them into a serries in the order of their stages of neutralization ,these of them that are next to one another would vary in composition etc. only about a fraction of one percent; while these of the extreme ends would differ 99 and a fraction of one percent,and the rest would differ according to distamce from one another in the serries. Thus it is seen why species next to one another differ so little(a fraction of one percent) and the lowest one cell animal and the highest one as the human being differ so much (99 and a fraction of one percent).And that the kingdoms,orders,classes,groups etc.are produced by greater compositional differences:Thus differences in the elements of the molecules produced the different kingdoms of animals and plants,while differences of proportions of the different simple molecules in the complexons produce classes and orders,and differences of arrangements of the proportions produce families and groups,and so forth.

Duration of Life,Period of Maturation,and Size of Animals and Plants and of their Organs.

We have explained the nature of the composition of the complexons . Now according to this explanation,it is seen,that a number of the complexons must be very intricate,and the tissues formed of them are slow in forming,that is ,grow slow in the growth of the animal;but the majority of them are only moderately intricate,and a few not at all and f rm easy and grow quick. Now it is also easily seen that it would take,in the growt of the animal,a longer time for the most intricate ones to form ; while f for the medium ones it would take a medium length of time to form,and for the easy ones a short time to form.And this would produce the effect,that while,in the growth of the animal,the most of the organs and tissues of the animals and plants are formed of molecules of the medium kind,and they would grow medium slow and to medium size,these of them that are formed of the quick growing molecules,would grow quick,and therefore an organ formed of them would grow to a much bigger size. And this apparently is the reason why some parts of some animals are unexpectedly and surprizingly big (much bigger in proportion to the rest of the organs);and why different species of classes grow to different sizes and forms; and why the animals and plants of higher and higher stages of development and neutralization mature slower and slower and live longer and longer.

Structures and Forms of Animals and Plants.

The structures and forms of animals and plants depend on the forms and chemical forces of the molecules from which they are built.Becausethe chemical forces of cells are different on their different sides,the same as on the fifferent sides of atoms and molecules of inorganic chemistry.And different cells,as different molecules,have different forms and different dimensions,and their chemical forces (intensities) are different on their different sides,the same as on the different sides and faces of the atoms and molecules of inorganic chemistry.Now these things determine the form of animals and plants.Thuswhen a fertilized egg commences to divide into cells,these cells do not unite with one another at random,but with the sides of greatest chemical force,And as a result of that,as division progresses ,they form into a ring or blastula. In the same manner they ~~effect~~ the shapes of the organs of the animal,and these organs give the form to its body

Differetiation

In the proceds of the division of a fertilized egg into cells,the cells into which it divides,as a result of the lew of neutralization and differentiate progressively.That is,it is of a greater stage of composition AND neutralization.That is each successive cell is developed more than the preceding one.Also as a result of that differentiation of the cells the part A cells of the blastula becomes coneutralizing with the cells of of the sides B.B,and these in their turn with the cells of the end C.And this is makes them to attract one another;and the end A to fold into the blastula to the sides B,B with the result that they form a gastrula,as in the accompan.fig.

Now (it is because that each cell in a blastula is chemically more developed than the preceding one,that each cell when it commences to multiply and grow,gives rise to a different part or organ of the body of the animal;and that organ is a higher developed part of the body of the animal.And that is why the organs of a body are formed in a certain order,locality and succession;And why from germ layer 1 of a blastula the least developed organs of yhe body are formed;and from layer 2(the middle layer) more developed organs are formed,such as the different muscles(striped and smoot) and musculatures etc. And from layer 3 the most dev loped organs,the nerve and brain systemsM

In the blastulae of certain animals or slasses because the composition and arrangement of the elements of certain of their cells is very com plicated these cells grow very slow .And therefore are in the begining almost absent in the blastula ,but start to after the blastul became quite big ,with the result that they appear as a new layer,such as the intermediary germ layer .Of course the substances of that layer therefore are che mically intermediate .And so are the organs that are formed out of that layer of intermediate stages of neutralization.

And this is how and why the formation of the organs of anamals their successions and locations are not only constant ,but by law preordained and consequential.

Law of contact; and how some of the Organs of Animals are formed.

By-products in living organisms and plants are foreign bodies. Foreign means substances whose chemical forces are either much bigger or much smaller than the chemical forces of the tissues in which they find themselvas;and which therefore are not coneutralizing with the chemical forces of the substances of these tissues.As a result of that every substance organic and inorganic does not like the presence of a foreign body in its midst,it being against the law of neutralization,and strives to elliminated it(while on the contrary,each substanwe attracts a substance whose chemical force and dessphericity is more or less conspheric and coneutralizing with it).Now as a result of the law of neutralization the chemical forces of the foreign bodies and of the tissues,in which they are present both induce the formation of new substances between them whose chemical forces are intermediate between the chemical force of the foreign body,and that of the tissue,and these substances are neutralizing the chemical force of the foreign bodyThis is why a splinter in a living tissue is soon surrounded by compounds or growths. Thus this is the law of contact,or the f formation of organs induced by contact.And it id this law that causes probably the formation of all organs in animals and plants that elliminate or conduct away the by-products or wastes of their bodies as the kidneys,blaer,liver veins and arteries etc. The blood is ful with by-products

The begining of Cell formation

All organisms are built of cells.Because when the chemical forces and dessphericities of elements are big,such elements form definite compounds. That is,compounds in which one of the elements (the asspherizee) combines with one,two,threeand four atoms of asspherizer.And the chemical forces of such combinations are strong,big and very definite.Inorganic chemisty entirely consist of such compounds.But when both,the chemical forces ,and elements and their molecules are very,very small,the molecules of such elements have very small adhesions abd are as explained,soft,and then their molecules cannot combine in definite proportions That is to say,when both the elements and their chemical foces are very small and soft,their molecules can form no more definite compounds,but combine in lumps or little masses.That is ,a little lump or mass of one compound combines with a little lump or mass of the substance of the other compound,and the magni-

tudes of the two masses are inversely as their affinities for one another or as the intenseties of their chemical forces. Now when the two lumps are combining the law of neutralization makes one of the, in order that the two masses should neutralize one anothers chemical forces the most, to stretch itself all around the other one in order to come into greater contact with it with the result that the two make a cell. And this is the origin of cells, and why organic substances are all made of cells.

Illustration of the Law of Cells.

We willnow illustrate the law of the splitting off & separation of the little masses that form cells and their proportion by the law of the magnitudes and separation of drops: Let us assume that the adhesion of the molecules of water to one another and to bodies is, say, 5, while the attraction of the earth on each molecule of water is only 1. Therefore if we hang on a molecule or a layer of molecules of water to a body B, and then add another layer on top of the first, and then a third on top of the second; than a fourt and a fifth. Now all the 5 layers, that is, the quantity or mass of water of all the fife layers will hang on to the body B without droping. But the instante we add a sixth layer or any fraction of it, to the fife the whole little mass of water will separate itself from B fall and fall to the earth This is because the addition of the sixth or any part of it made the attraction of the earth on the more than 5 layers of water greater than their adhesion to the body B. Similarly if we take or assume that the earths attraction is only one hundreth part of the adhesion of the water molecules, then, if we take B and dip it into water and take it out slowly, an amount of water equal to 100 layers will hang on to it. But if we add then another layer or fraction it will at once fall to the earth. Now as the specific gravity and adhesions of different substances are different, therefore drops of different liquids are of different magnitudes.

Why Organic Substances are soft

Organic substances are soft because their chemical forces and desphericities are small. And that is why nerve and brain substances are the softest of all.

Why Organic Substances cannot melt.

The reason why organic substances cannot melt nor boil is that their

molecules cannot be made more round,and therefore their chemical forces m more neutralized and meltible.This is because their molecules,as explained are compounds of the elements of the H.N.C classes with the classes of imponderable elements;the atoms of the H.N.C classes being the ~~central atoms~~ ~~CENT~~ centers of the molecules and the imponderable ones combining with their faces(of the atoms of these centers) all around each.Now,as known, as a result of the law of neutralization,asspherizees can combine only with one atom of asspherizer on each of their faces.And therefore organic substances can combine with no more imponderable atoms.And as there are no smaler atoms than the imponderables;therefore the molecules of the organic substances cannot be made more round and cannot melt.

*

Recapitulation

Thus we have explained what Life is,and that it is a consequence of the neutralization of divided matter-force,the same as all the phenomena of inorganic chemistry are. And that all its creations (animals and plants)and all its other phenomena are requisite and compelled by law.And so is its existence in so many variations consequential and compelled by law;and that ~~th~~ these variations must be successively of higher and higher developments and very small;and the succession or chain of animals and plants a very long one. We have farther shown how the life possesing substances of all beings are formed;and how the animals and plants are formed;and the why of their division into kingdoms,genuses ,orders ,classes,groups ,families etc. And alsowhy organic substances combine first into cells and these into tissues.Thus we have covered theoretically all the angles of the phenomena of the formations of the great organic empire.

Insert after asterisk of page 120

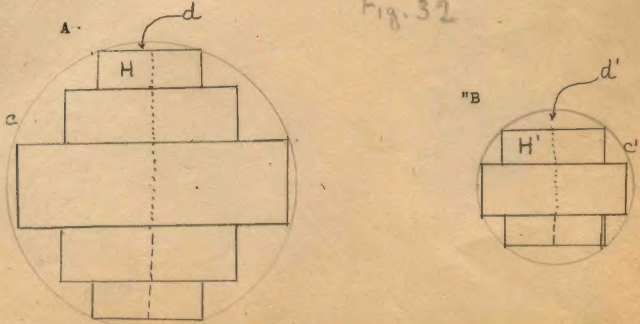
It is seen that (in the melting of metals) the bigger the element is the more can its molecules be neutralized by heat atoms;and the more too are the heat atoms themselves neutralized in their rounding of the molecules of these elements.Thus if we draw a conspher icity circle c around the molecule of a big element,as that of fig. A,and when that circle touches the corners of the central and heat atoms H of the molecule ,it is seen that the chemical force of the molecule is almost entirely neutralized,as shown by the smallness of its dessphericity d.But on the contrary,whem we draw a dessphericity circle c' aroun a molecule of the compounds of the classes H, N,Cwith the heat atoms,as in fig.B,it is seen that the molecule is less neutralized than that of the molecule of fig. A,as shown by its dessphericity d',which is more than twice as big as that of d.And that dessphericity ,as already explained,can in no way be made more round,so as to be meltible.

All phenomena in creation are due to the law(of space)of the inconvertibility of the square into the circle.But because force,as known,is only equally neutralized when it is spherical(and the aim of the law of neutralization is the neutralization of that force)Therefore universal force could only be neutralized best by the division of universal matter-force into elements ,and these combining successively into more and more spherical molecules*.And these combinations are the phenomena of creation.

---

* Of course the molecules of these combinations are not absolutely spherical,as that would mean the rounding of the square.

Fig. 32



BLUE PRINTING

A. H. MATHIAS & CO.

PHOTOSTATS
PHOTO-LITH
GIANT PHOTOS
MICROFILM

QUALITY ESTABLISHED 1899 SERVICE

319 FIFTH AVENUE
MAIN OFFICE
PRIVATE EXCHANGE
ATLANTIC 1800

PITTSBURGH 22, PA.

September 16, 1947

Mr. M. D. Stone
United Engineering & Foundry Co.
1808 ~~First National Bank Bldg.~~
Pittsburgh, Pa.

Dear Mr. Stone:

In line with your request, we wish to quote as follows:

200 books, size 11x17, consisting of 100 typewritten pages and cover (typed sheets to be furnished by you--ready for the camera).

Cover to be photo-lithed in black ink, 1 side on Pin Seal Marco; text pages to be run in black ink, 2 sides on 60# offset. Sheets and cover are to be folded to 8-1/2x11, collated into book form and saddle stitched with 2 wires along 11" way.

Price will be approximately..............$404.25 Net.

50 extra books, approximately............$75.00 additional.

Thanking you for the inquiry, may it be our good pleasure to cooperate with you in the reproduction of these books.

Very truly yours,

A. H. MATHIAS & COMPANY

Edward M. Pinchot

Edward M. Pinchot

EMP:nw